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THE DEFECTIVE DELINQUENT CLASS DIFFERENTIATING TESTS.[1]

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The broad question of the ideal method of treating prisoners is probably as little susceptible of a categorical and final answer as the question of the locality in which it is best to live, or that of the ideal form of government. The many complex and interdependent elements involved in such questions renders necessary the consideration of timely expediency and local circumstance. But whatever other features may be embodied in any satisfactory treatment of prisoners, it may be predicted with safety that a modification and extension of classification will not be omitted. In seeking to simplify and define this problem of penal administration for our present purposes, fortunately one section may be split off and treated as an entity.

There is one class of delinquents whose pernicious activities may be much more effectively controlled by giving its members the rational, educational and humane treatment which their condition demands. This class consists of mentally defective persons who cannot support themselves, and who are not amenable to reform, but who revert to a vicious life and associations inevitably. The unrestrained activity of these high grade defectives is a potent factor in filling the court dockets and in recruiting the ranks of vagrants, degenerates, habitual criminals and the criminal

[1] Read before the Boston Society of Psychiatry and Neurology, October 19, 1911.

Grateful recognition is accorded F. Lyman Wells, Ph. D., of McLean Hospital, Mass., for valuable technical suggestions and criticisms, notably the serial arrangement of integers in the ethical discrimination test.

insane. In fact these people are all recidivists when once started in criminality; though the converse is not true.

Criminal courts and court officers, prison officials and physicians, educators of the feeble-minded, truant officers and officers of the organized charities know the defective delinquent, and the hopelessness of trying to care for his class satisfactorily, or of protecting society from his depredations under the present system. Our legislative and judicial systems assume that the guilty prisoner is responsible for his acts unless he is shown to be insane; whereas, in fact, the defective prisoner is only partially equipped for life, and because of a natural, not acquired, handicap has at best but a limited responsibility. No state or country, so far as known to the author, had accorded legal recognition or status to this class prior to July, 1911, when Massachusetts became the pioneer state to recognize the principle herein enunciated by enacting a law providing for the establishment of separate departments, in three of the penal institutions of the commonwealth, for the reception of defective delinquents. With this exception the needs and defects of the members of this class are nowhere recognized in their care and treatment, and when they fall into the toils of the law they are expected to measure up to standards and react to discipline that is adjusted to the capacity of fully equipped delinquents. This they cannot do, and so it has come about that the few of these that are to be found in our prisons and reformatories are a recognized draw-back to the efficiency and a substantial detriment to the discipline of every institution to which they are sent.

A life sketch of one of these unfortunates will define perhaps one's conception of the type. In childhood wayward, obstinate, disobedient, and lacking in affection and appreciation, his mother reluctantly admits that he is not like other children. In school, inattentive and at the foot of the class, he soon begins the life of a truant and acquires bad habits from the vicious associates whose cat's-paw he becomes. At the truant school he is regarded as constituting the most incorrigible type. At the reformatory he is a careless, ambitionless misfit, or a stubborn, sullen troublemaker according to his disposition. After each release he is sure to reappear in court, for he has no trade and cannot retain any position long, and is easily victimized by the vagrants and crimi-

nal associates whom he seeks. He has neither the judgment nor the strength of character to avoid his ill-chosen friends, or to refuse to be wheedled into doing their dirty work. So, licentious and diseased, he runs the rest of the gamut of the house of correction, prison and perhaps hospital for the criminal insane.

The reason such a prisoner cannot be reformed is to be found in his peculiar intellectual equipment, the result of arrested mental development. The high grade imbecile is often a plausible, glib talker and sometimes can make a good first impression on a superficial observer; but he is egotistical, uninformed and anti-social. He lacks high ideals and real morality, though he may have a fair academic knowledge of right and wrong. He is incapable of long endurance and sustained effort and concentration of attention, and so can neither acquire skill and knowledge nor accumulate wealth. He lacks a worthy central ambition or plan in life, and seldom has a well defined method in view whereby to accomplish his puerile projects. He is easily bullied or flattered, being very "suggestible," but is seldom influenced by an appeal to the higher mental qualities: ambition, gratitude, reverence, remorse, etc., in fact it often seems that self-interest is almost the only motive that can be stimulated into sufficient activity to become a source of action, and that his egoism is about the only route to what he may wish to conceal. He will almost invariably sacrifice future lasting benefit for some trifling immediate gratification. Easily swayed by some ignoble impulse or inclination, he is not easily amenable to the influence of reason, and so is unstable in temper, and unreliable or dangerous. Conscience, concern for consequences and a feeling of responsibility, honor and fairness seem represented in his field of consciousness by vestigial remnants only. He urges and is satisfied with invalid excuses and sophistries for shortcomings. His acts and decisions show defects of judgment which, with his lack of constancy, are fatal to his chances of success. Some exhibit arrogance and conceit with small basis therefor. Many can do fairly well under surveillance, but left to themselves they are inconstant and fail.

As a class their patriotic and altruistic feelings are weak, and their fear of personal or physical harm is unduly strong, so that they are apt to be cowardly and cruel. They often falsify, lacking a love of truth for its own sake, and not being far-sighted enough

to see that an untruth is never really expedient. They lack an adequate conception of the value of consistency, fidelity, forbearance, fortitude, accuracy, system and logical sequence. These people often volunteer that they "can't help doing wrong," or ingenuously assert in justification that they "wanted to do" so and so, and the pitiful truth is that such expressions of feeling are acceptable to them in lieu of reasons. Self-criticism is outside their thinking. Sometimes it is not a defect or lack of ability that defeats them, but their failure to use or co-ordinate their faculties in crises, whence their poor judgment and lack of self-control. On examination they exhibit a lack of training, of course; but the significant fact is that this class has a defective capacity for training. They show an undue number of the mental stigmata of degeneracy and easily become victims of alcohol and drug habits. These mental characteristics are common to all misdemeanants in some slight degree at least, and even the best equipped of mankind may show some of them at times; but the class under consideration exhibits them in a marked degree and frequency of incidence.

This class is not a large one, but it is very prolific and each succeeding generation encounters it in augmented numbers. Repeated cases are known to the organized charities of defective unmarried females who have borne one, two, three or even more feeble-minded children. Some of the members of this class of both sexes could be restored to their friends and society after a longer course of custodial and educational care than is required for the reform of the ordinary delinquent; but for all of those who belong in this class of "Defective Delinquents" custodial, medical and educational treatment is needed, even though it be long continued, in place of the punishment now meted out to them and to which they react so ill. When this regime is inaugurated the segregated class will be prevented from procreation and so it would seem that the realization of the plan to segregate early in life would result in the most direct and effective means of the diminution of criminality that readily suggests itself. The group of so-called "Moral Insane" cases, criminal degenerates and criminal sexual deviates should be differentiated by appropriate methods and would be properly treated if committed for segregation.

The existence of this peculiar class of prisoners has been asserted by high authority. Dr. R. B. Lamb, of the Matteawan State Hospital, N. Y., Dr. J. W. Milligan, of Michigan City, Indiana, and more recently Mr. Ernest K. Coulter, retiring clerk of the Children's Court of New York County, and many other thoughtful criminologists who might be mentioned have advocated their special institutional treatment. Dr. William Healy, director of the Juvenile Psychopathic Institute of Chicago, is devoting the energies of his foundation to the solution of the problem of the differentiation and treatment of defectives and especially of defective delinquents.[3] His expert decision based on data from his excellent group of psychological tests is frequently required by the courts and is of the greatest value, given as it is, before court trial. Dr. W. E. Fernald, the eminent authority on the education of the feeble-minded, said in his annual report to the governor of Massachusetts, in 1905, that this class existed and needed special treatment, custodial and educational, and predicted that it would sometime be accorded a legal status.[4] So, apparently, the existence of this class is a fact generally recognized by competent authority.

Methods of the determination of the personnel of this class are yet to be proved and standardized, however. Much good work has been done in the evolution of these methods especially of late; but probably the value of the more extensive use of psychological tests, uniformly applied in a scientific manner so that the processes of the science of mental measurements may be employed in the evaluation of the data obtained and exact records be kept, needs further demonstration.

It is true that scientific measurements of physical or mental qualities fail to furnish a means of discrimination between a responsible person who is not a criminal and the responsible criminal. This is the problem that has vexed certain criminologists of scientific bent since the time of Lombroso's early writings. All attempts along this line have failed as has the latest,[5]

[3] "Tests for Practical Mental Classification," Psychological Review Publications, Vol. XIII, No. 2, the Review Publishing Co., Lancaster, Pa., and Baltimore, Md.

[4] See also "The Imbecile with Criminal Instincts," Am. Journal of Insanity, Vol. LXV, No. 4, April, 1909.

[5] Justice DeCourcy's address on "The Problems of Crime."

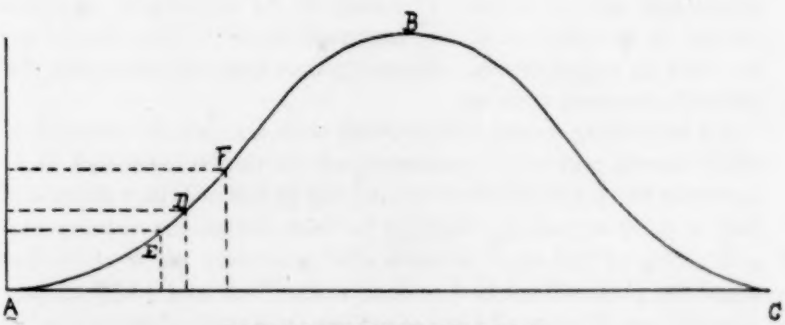
which was an effort to find a physical basis for classification in England, a carefully conducted scientific investigation of 3000 of the worst type of criminals. This served to show only that there is a striking similarity between the criminal and non-criminal classes. Such trials must fail because they attempt the differentiation of two classes which have no fundamental difference of kind or genus, but only the superficial dissimilarity that their members react differently to social and legal requirements. A glance at the problem of this investigation, however, shows that the classes sought to be differentiated exhibit a fundamental difference dividing them into separate genera, *i. e.*, the difference between a mentality which is defective and one that is integral.

A great variety of departures from the normal, varying both in degree and kind, awaits the scientific observer; but the recognition and differentiation of the class under consideration is not very difficult and not at all uncertain. A study of a carefully obtained anamnesis from both the subject and his family, a consideration of the subject's reactions to a series of psychological tests and an estimation of his intellectual and moral worth, of his capacity for self-control and self-support, of the relative strength as a guide to action of reason and will on the one hand, and of emotion and impulse on the other, furnishes the alienist with the essential facts which, grouped and correlated and compared with data from other cases, constitutes a defensible basis for a classification. It is essentially a scientific problem involving as it does the collection and consideration of many factors, some of them complex and diverse or interdependent, the measurement of intangible qualities and attributes, the detection of disease, the recognition and evaluation of temperamental and environmental forces, such as heredity, acquired habits and tastes, natural defects and capacities, training and deficiencies thereof, initiative, suggestibility, moral standards, ambition, wishes, stress of temptation, etc. Men and methods are available, however, for the prosecution of these studies. In institutions for the feeble-minded of several states psychologists are to-day at work in psychological laboratories which did not exist five years ago, and psychologically expert medical men can be found as the need for this work is appreciated.

Definition.

To explicitly define the class we may regard as within the group of defective delinquents one whose mentality is so imperfectly developed that he is unable to support himself honestly, and whose acts repeatedly conflict with established social and legal requirements. Above the maximum limit of this group are those who are mentally competent for self-support and below its minimum limit are morons, imbeciles of institution grade and idiots. In other words, the defective delinquent is one who is smart enough to get into trouble but is not smart enough to keep out of it.

The group may be presented schematically. If points along



NORMAL PROBABILITY CURVE.

the probability curve A, E, D, F, B, C be taken to represent the varying ability of mankind from that of the helpless imbecile to that of the finished gentleman, then somewhere as at F is a point representing the division between the normally minded and those below normal, and the group of high grade defectives among whom are those of criminal tendencies and training which we wish to differentiate may be represented as falling between D and E.

Tests.

The application of psychological tests is not proposed as the one essential method of examination to be employed in differentiation and classification. It is an important method, probably the most important and adequate within its sphere; but it is only

one method available among others and to be supplemented by them. Moreover, any attempt to classify a group of prisoners or other subjects based solely on the findings from psychological tests would commit grave errors. These tests alone are not adapted to detect, for instance, cases of degeneracy, sexual perversion and moral insanity, so-called, and for all cases requiring the measurement of moral stamina as well as intelligence other tests must be supplied.

In selecting a series of physical and psychological tests several desiderata are to be considered. They should enable as comprehensive a view of the mentality of the subject as possible without too great an expenditure of time required in the examination of a sufficiently large group. The apparatus should be easily procurable and portable. The tests to be universally available should be independent of the language factor. They should not be open to the objection, moreover, that they call into play the subject's previous training.

An immediate reason for applying such a series of tests and of other mental and moral measurements at the Reformatory is to ascertain the ratio of defectives therein to the ordinary prisoners. And a most important object is to demonstrate the validity and availability of this scientific method of procedure and to show that when the plan and method is once worked out and accepted, any scientific practitioner of some experience can apply these or similar tests and methods of investigation and place within the reach of courts and prison officials the means of deciding on the responsibility or degree of responsibility of the accused.

LABORATORY OF MASSACHUSETTS REFORMATORY HOSPITAL.

Psychological Tests.

ANAMNESIS.

1. Number of arrests.
2. Number of times an inmate of a correctional institution.
3. Number of truancies.

ANTHROPOMETRY.

1. Age.
2. Weight.
3. Height.

SENSATION.

1. Weight discrimination—by serial arrangement.
2. Extent of movement—by average error.
3. Color vision test, Holmgren's.

MOVEMENT.

SPEED.

4. Tapping test.

SPEED AND ACCURACY.

5. Three hole test.

HIGHER MENTAL PROCESSES.

WILL.

6. Achievement capacity test—achievement *vs.* comfort, the author's.

ATTENTION.

7. Cancelled numeral test, Woodworth's, Wells' modification.

ASSOCIATION.

8. Calculation test—31-3 in series to 1.
9. Uncontrolled association test—100 words, Kent's and Rosanoff's.

MEMORY.

10. Recognition memory test—10 post cards, Wells' modification.

ETHICS.

11. Ethical perception test—10 questions.
12. Ethical discrimination test—serial arrangement of 10 offences, the author's.

Methods of Application.

The tests selected do not lend themselves to collective application and their application at the Reformatory has been practically individual, *i. e.*, each was applied to each subject separately except that sometimes two subjects could be advantageously observed simultaneously, *e. g.*, one who had taken the Association Test was occasionally started on the Achievement Capacity Test while the Association Test was being given another. No attempt was made at a congregate application of any test. The environment could be maintained uniformly free from detrimental extraneous stimuli, as the examinations all took place in the physician's small

laboratory and office, connecting rooms, through which no one passed. The only sounds from without were those of a very quiet, small hospital, an occasional murmur of indistinguishable talk and quiet footsteps.

Especial effort was made to apply each stimulus uniformly. This was given slowly, after the subject was rested if he came in hurriedly, and while the examiner claimed his whole attention. The subject was informed if his performance was to be timed. In the untimed tests appropriate information was also given when such was needed. The spontaneous interest in the tests varied and was roughly commensurate with the subject's capacity to react normally to new and interesting things concerning himself and in which he could participate. Willingness to co-operate was in each case all that could be desired. None demurred at taking the tests, though all understood (very many being told) that the trials were optional.

As time for the work could be secured, the preceding list of tests was applied as above indicated to 116 Reformatory prisoners. In order to secure observations on a group which should be strictly representative, as nearly as that desideratum may be approached, the most recent arrival was always sent for to be examined except as noted below. Ten were rejected as too unfamiliar with the English language or because their age departed too widely from the Reformatory average, 20½ years. Of the 16 records secured, but excluded from those of the representative group, one was that of a re-application of the tests after an interval of eight months, and the other 15 were those of cases examined out of turn for some special purpose not directly connected with the scientific aspect of the research, *e. g.*, in the study of failures at the Reformatory school, simulated insanity, or some case of suspected mental defect or alienation. The size of this representative group of prisoners, 100, is too small to give psychologically conclusive and satisfactory results it is true; but as a modification of the series of tests promises better returns for the time and effort expended, it seems wise to terminate this group at the 100 mark and draw such conclusions as are available.

These tests doubtless vary in value; but with this series of scores no attempt is made to attach arbitrary or proportionate

values as the group of subjects is small and a further use of some of these tests with others may be expected to furnish a better basis for judgment as to relative values.

Method of Scoring.

For the purposes of this investigation, *i. e.*, to mathematically determine the relative standing in a series of the members of a representative group with reference to their ability in taking uniformly applied psychological tests, a method of scoring results should be chosen which realizes certain desiderata: (a) faithful representation, (b) conciseness, (c) susceptibility to the application of the processes of the science of mental measurements, (d) uniformity of basis of comparison between tests, (e) adaptability to use in tabulations, (f) universality of usage, etc. The method of representing degrees of error or efficiency by a single numerical value is chosen as it meets these requirements.

Norms.

The psychological problem is the determination of a group of a certain characteristic degree of intellectual and moral ability. This group is a small one with criminal training and tendencies and stands in point of ability between those ordinarily found in institutions for the feeble-minded and those able and willing to support themselves honestly. The question of guilt or innocence is one of judicial and social import. Psychologically considered the guilt or innocence of the subject is an accidental factor which is negligible. So, it is neither essential nor desirable that norms be sought among the innocent; but they should be sought among those of ordinary ability whose remaining characters are similar.

Norms for the Tapping Test, the Three Hole Test and Kent's and Rosanoff's Uncontrolled Association Test have been established; but none are available for the remaining eight as two of them are new, the Achievement Capacity Test and the Ethical Discrimination Test, and the others are modifications. Norms for these eight tests were secured from volunteers of the senior class at the Rindge Manual Training School in Cambridge, Mass., through the courtesy of the principal, Mr. J.

W. Wood, Jr., and his teachers who kindly supplied adequate facilities at a time when it was perhaps least convenient.

Physically the two groups of subjects show rather close resemblances to casual inspection, the prisoners being of a sturdier type on the whole (4.13 pounds heavier) and being on an average .91 years older. Intellectually and morally, however, the status of the prisoners is apparently inferior.

Apparatus and Stimuli.

I. weight discrimination.

Apparatus: Ten circular wooden boxes 4.5 cm. in diameter and 2 cm. high, similar in size, color and appearance except that each is lettered with one letter of the word, EPICANTHUS. The boxes are weighted with shot and melted paraffin to weigh 50, 54, 58, 62, 66, 70, 74, 78, 82 and 86 gm. respectively. It was found after several trials that with the rate of increase of weight from one integer to the next in the series at 2 gm. some of the subjects seemed dismayed in the start and lost interest. With a difference of 4 gm. between neighbors in the series this difficulty was obviated. No one complained that he could not discriminate, and the number of perfect scores shown, five or five per cent in the Reformatory group, and one or eight and one-third per cent in the norm, together with the high average scores, 81.04 among the Reformatory group and 90.04 among the norm makers, would seem to indicate that a difference of 4 gm. is a happy one for our purpose.

Stimulus: "Will you see if you can arrange these ten weighted boxes, no two alike in weight, in a row by trying their weights? When you have the weights rightly arranged any one of them will be 4 gm. heavier than its left hand neighbor. Take one on the fingers of each hand like this and after a moment change them from hand to hand. If you are careful at the moment of change you can tell which of these two is the heavier. Then by trying the others in the same way you can sort them out and find the lightest and the heaviest for each end of the row and then the position of the others so that No. 2 is the one that is next to the lightest in weight, No. 3 is next heavier than No. 2 and so on. You see there is only one correct arrangement and there are a great many chances of mistake. I will note the time it takes you;

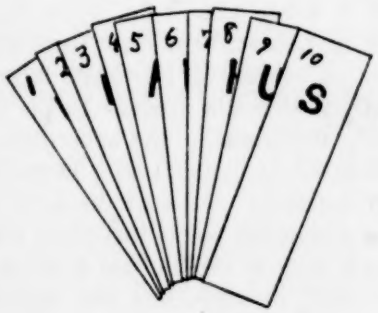
but it is not to see how quickly you can do it. Take all the time you need and try to find the right place for each weight. When you are satisfied let me know."

It was noted early in the investigation that certain of the subjects reacted to this test in a peculiar and characteristic manner. Their scores showed no tendency to approach a correct series, being no better than a random arrangement and some showed a decided tendency toward reversal; *e. g.*

8, 5, 9, 7, 10, 3, 6, 1, 4, 2 . . . . 20—as compared with
2, 4, 3, 1, 7, 5, 6, 8, 9, 10 . . . . 80.

When one of these characteristic arrangements appeared the subject was asked at which end of the series the lightest weight was placed, and if he indicated the right hand end his work was scored accordingly, of course. A legitimate interpretation would be that these subjects were not aroused to the point of making real mental effort by the stimulus; but nevertheless went through the motions as directed and submitted a haphazard result, *i. e.*, they did not react normally. None of the norm subjects reacted in this way. The conclusion seems inevitable that such subjects fail to respond to a natural demand on their ability to make a painstaking effort and to appreciate the importance of being careful, *i. e.*, they lack conception of the demands of the situation and possibly capacity for applied attention. The ability to take pains and to make the sacrifice involved in being thorough is an essential quality of the normal mind and is vital to success in the acquisition of knowledge and the expression thereof. Moreover a deficiency in this regard is characteristic of the defective. This test seems to furnish, so far as any one test may be expected to do so, a means of differentiating between those who have this mental quality of conscientiousness in a measurable degree and those who lack it. This feature of the test extends its usefulness into the sphere of the higher mental functions and adds another means of deciding border-line cases. Of course the examiner is not justified in drawing an inference as to the subject's willingness to submit a half-hearted effort for a painstaking one till he has tried the patient's acuteness of sense of weight with two weights known to differ by at least 8 gm., lest inability to distinguish be a factor. If a subject can distinguish between weights with a difference of 8 gm. his conscientious arrangement should show a score with a perceptible tendency.

Scoring: Before each of the weighted boxes bearing the letters of the key-word as arranged by the subject is placed a card bearing the same letter and the corresponding numeral. The numerals as thus automatically arranged are noted and later evaluated. The method of evaluation is to count the number of places through which each misplaced numeral passes in the restoration of the normal order. Since the reversal of the natural order or any other "worst" arrangement counts 50, to reduce the scores to a uniform basis each error should be counted as two before subtracting from 100 to find the efficiency score which is noted.



2. EXTENT OF MOVEMENT TEST.

Apparatus: A machinist's steel scale 20 cm. long, graduated in inches to hundredths and in cm. to one-half mm. Strips of paper about 2 cm. wide and 28 cm. long.

Stimulus: "Here is a scale about eight inches long or exactly 20 cm. long. In a moment I will ask you to draw some lines of the same length as this scale. You would better note how long it is and swing this pencil over its length several times, stopping just at the end; so that when I take the scale away and give you paper you will have a good idea of its length." Then after five or six passes of the pencil a strip of paper is substituted for the scale. "Now draw one line on this of the same length as the scale." That being done more strips are given, one at a time, and the five lines are at once measured and the average calculated.

Scoring: Average error in mm. together with the appropriate sign is noted. The relative proportion of plus and minus signs in the group is 17:83.

3. COLOR VISION TEST.

Apparatus: Prof. Holmgren's worsted test for color blindness. Only one case of genuine color blindness was found among the 116 cases examined. Some cases with scores in the 90s and 80s and a few lower ones appeared whose defect seemed to be lack of ability to apprehend the stimulus and lack of training in observation. As these defects are sufficiently manifest in the scores of other tests the mathematical work of this test has been omitted.

4 and 5. THE TAPPING TEST AND THREE HOLE TEST.

Apparatus: An electrically connected and insulated stylus adapted to close a circuit on contact with a brass plate or on contact with the bottom of any of three holes in brass plates. The holes are 6.5 cm. apart, 1 cm. deep and fit the stylus very loosely. The whole is suitably mounted on a wooden base. A "Hollerith electrical tabulating system" to register the contacts. This apparatus was furnished by Stanford White, Substation 84, N. Y. Stop watch.

Stimulus: "With this brass pointer tap as fast as you can on the brass plate like this. You see I can count your taps on this dial. Now I'll give you 10 seconds and you are to get in as many taps as possible on the plate in that time. I'll tell you when to start and when to stop." For the Three Hole Test: "That test shows how fast you can make your hand move. Now I want to see how fast you can move it from one place to another. So touch the bottom of each of these holes one after the other as fast as you can for 10 seconds."

Norms: Prof. Marsh has established a norm of 100 taps in 13.99 seconds for the speed form of the test by applying it to a very large number of subjects, and a normal rate of 100.46 per minute for the accuracy test.

Scoring: The number of taps in 10 seconds is recorded.

6. ACHIEVEMENT CAPACITY TEST.

That function of the mind called will, persistency, determination, pluck or spunk plays too large a part in the successes or failures of these subjects to be overlooked in an investigation of efficiency. It cannot be measured directly apparently; but it may be measured in terms of voluntary endurance of discomfort, *e. g.*,

pain or fatigue. Units or increments of pain are not so readily determined and measured as units of fatigue. The will might be measured in terms of fatigue induced by lifting foot-pounds but the difficulty of adjusting the burden to the varying physical strength of different subjects would be encountered. It is practicable to test the endurance of the will measured in terms of muscle fatigue in units of time; if the test can be so arranged that the will shall be exhausted while there remains a margin of unexpended muscular energy. Fatigue is rapidly induced in a natural manner and without harmful results in the subject who stands with the heels one-fourth of an inch off the floor. The chief disturbing factor when subjects whose ages vary but little from the group average are tested by inducing fatigue is the varying degree of physical strength. The effect of this disturbance is practically eliminated, however, by adapting the test to fatigue that set of muscles, the strength and development of which most nearly correspond with the body weight, *i. e.*, the muscles used to support and carry the weight of the body. Previous training, that disturbing factor in so many otherwise available tests, also plays only a nominal part in this one.

Certain subjects react to this test in what seems to be an abnormal manner, *i. e.*, they cease exertion and terminate the test after a very short trial, and long before the will power is exhausted by muscle fatigue. (Viz. cases 15, 31 and 68.) None of the norm group reacted in this manner. This fact is far from vitiating the test, however, for what is shown by the peculiar reaction above indicated is inability to react to this normal stimulus. Such a subject ignores a reasonable demand for his best efforts and is actuated by an impulse or an unworthy, whimsical motive. He shows lack of ability to make a sacrifice of temporary comfort for a worthy achievement. So this test gives a low score which amounts, in such a case, to a measure for defective judgment rather than will power.

In evaluating this test not only will the wide variation between the lowest and highest scores in both Reformatory and norm groups be noted (3¾ to 52¾ minutes and 12 minutes to 2½ hours respectively); but also the marked disparity between the median and average of the two groups, *i. e.*, about 35 minutes, a difference twice as great as the Reformatory group average.

Apparatus: A simple device for visualizing the degree of eleva-

tion of the subject's heels while he supports himself with the heels off the floor. It is equipped with an electric bell to warn when the heels sink to the floor level. The device consists of a plate upon which the subject stands facing an upright erected to a height of about 5½ feet. Pivoted on the plate at a suitable point is a stiff wooden lever furnished with a light cross-bar at the end of the short arm on which the subject's heels rest and connected at the other end by a thin wire to the short arm of a needle about 25 cm. long pivoted at a point near the top of the upright to oscillate in a vertical plane behind a suitable dial. The long end of the needle terminates in a one-half inch black disk which shows against a white background through a fenestrum in the dial 20 cm. long. A weak coil spring is introduced at a suitable point to maintain sufficient tension to insure positive action. The proper adjustment of the lengths of the lever-arms enables the multiplication of the amplitude of the fluctuations of the needle point over those of the subject's heels by 10. This apparatus has been found to be positive and delicate beyond all demands, visualizing even the involuntary muscular tremors communicated by the heels of fatigued subjects. The pressure exerted by the bar beneath the subject's heels is 20 gm.

Stimulus: "I have tried your memory and your skill with the weights, etc., all short tests. Now this is one that takes considerable time if one does it well. I find that there is a great difference in the will power of different people. Some give up easily and some don't give up easily, but keep on with what they set out to do even if they are very tired. You've seen firemen work when they were all tired out, haven't you? And you've seen men playing foot-ball when they were about all in; but they kept on. They didn't give up easily. A man wouldn't stay on a foot-ball team long if he gave up when he was tired, would he? Now, I want to see how long you can keep going when you are tired. You want to know that too—to see how well you can make good even when you want to quit very badly. Now to try that I have to make you feel tired. I could do that by asking you to shovel sand or lift weights till you were too tired to do more, but there is a much shorter way than that. One gets tired very quickly by standing with his heels off the floor and it doesn't harm him any either. In five minutes after stepping off the plate you'll feel comfortable again no matter if you ache badly just before step-

ping off. Now the little black ball will show you when your heels are near the floor. If your heels touch the floor you must stop. So be careful. To warn you I have these marks set and you should keep the little black ball between them. If, however, you should accidentally let it pass either of the marks you need not stop your trial, for you have three chances before you must stop on that account. So, you must stop the first time your heels come down on the floor, *i. e.*, when the bell rings or the third time the little black ball passes either mark. If you should begin to lose your balance you may steady yourself with your thumb and finger on the upright for a moment but without putting any weight on it. You are given these chances so that when you have finished the test you may feel you did not stop because of any accident but because you had to give up. Now take all the time you want and if your record is a good long one it will show how well you can make good even when tired. This test is to show me and show you too whether you are a quitter or a stayer."

Scoring: Time noted to seconds.

In practice it has been found that the theory of the test is valid. No subject has fallen exhausted muscularly, but every one voluntarily stepped down or rested his heels and then stepped down and walked away, showing that the will to withstand the fatigue longer had yielded before the muscles lost power. The subjects' feeling as expressed in their occasional, spontaneous remarks on yielding is one of being overcome by fatigue and not one of being unable to prevent the heels from sinking, *e. g.*, "Well, I guess that's enough for me." No one complained that he could no longer keep his heels from sinking. Several said something about being "all in" some seconds *before* yielding, showing that the will was weakening and the time approaching when the subject would decide to yield. The yielding was always, apparently, the result of a decision to cease the contest and never appeared to be a sinking of the heels while the will was still operating ineffectually to keep them up.

The average norm time in this test, about 50 minutes, seems to establish the fact that in applying the test any subject who stands longer may be advised to rest, as he has demonstrated that his capacity in this test is at least normal.

7. CANCELLED NUMERAL TEST.

Apparatus: Printed sheets bearing Wells' modification of the "A test." This consists of a block of numerals set solid in 20 lines of 50 numerals each so that each line contains each numeral five times, the arrangement being a random one. Stop watch.

Stimulus: "Cross off all the ciphers (or 3s or 7s). Try not to miss one as I shall find it if you do. I will see how long it takes you, but the main thing to look out for is that you do not overlook any zeros. Take one line at a time."

79621340554251938607904817236562830514975948071286
96810537421945370268047238659190368271547503294168
07342918659612487053198306547215793482608359726401
34768125906307594812485973120671029645383471652890
65973284010836149725253469018754172839061265830749
83509472168570213946521084763927451906836897103524
18097653242784651390312695874048205163794180569372
20485761397168025439670142395806947328152016487953
41256809735093762184869751402383516790429624315087
52134096873429806571736520981439684057210732948615
51684923701275048693418902563717560892437869043125
78051342692406761538320415796848126739053790865214
35978461025182374960859324107693452086179316758402
27396508149736150284047859621309315648724235679081
42530179863860915472936748012564931207586127490538
94703856216093827145781096435252794163801048237956
09825617438354692017602137958421849570360952186743
10462795380628439751274560389135078421695681924370
86149230574517286309195683274086207354912473501869
63217084957941503826563271840970683915248504312697

9. ASSOCIATION TEST.

Apparatus: Kent's and Rosanoff's 100 words on sheets suitably ruled for recording the reaction word and reaction time for each word. A stop watch of the New York Standard Watch Co., which, while less elaborate than the kymograph, gives fairly exact measurements to fifths of seconds. Smaller fractions of seconds than fifths could be clearly discerned only on a larger scale than is possible on a watch face.

Stimulus: "I have a list of words to give you, one at a time. As soon as you can after I give you a word you are to give me one, the first word you think of which the word I give you makes you think of. I will note the time it takes you to think of each word and the word you give. Now there are a great many words you could give for every one that I give you, viz: If I give you the word "coat" you might say woolen or black or thick or dark or heavy or man or large or buttons or collar or paint. But I only want one from you, the first you can think of, no matter what it is, even if it is some disagreeable word. Now don't wait to pick out a good one or you will get mixed up. Give the *first* one."

Scoring: The reaction time in fifths of seconds and the reaction word are noted in appropriate spaces on ruled sheets. Doubtful reactions are noted in the margin. Normal reactions are found on comparison of the subject's score with Kent's and Rosanoff's norm published in the AMERICAN JOURNAL OF INSANITY, Vol. LXVII, Nos. 1 and 2, 1910.

10. RECOGNITION MEMORY TEST.

Apparatus: Twenty post cards in black in two groups, no duplicates but so selected that a striking feature of a picture in one group is represented by something similar in the other, *e. g.*, a colonial church spire, a sheet of water, a large building in the foreground, etc. In one group the stamp space is underlined for identification.

Stimulus: "As I lay these post cards down get a good look at each so that you will know it when you see it again. As soon as I get them all down I'll take them up again and shuffle them in with ten you have not seen and show you the whole 20. You are to pick up those you are now looking at."

Scoring: Percentage of correct recognitions noted.

II. ETHICAL PERCEPTION TEST.

The determination of the question of the possession in some worthy degree of a knowledge of right and wrong is an element of some importance in the problem of the degree of individual responsibility. Tests of this knowledge, however, are purely intelligence tests and a knowledge of right and wrong *per se* is small safeguard against wrongdoing. Of intelligence tests we have many.

Apparatus: Ten ethical questions, seven of which are to be answered by "Yes" or "No," and three, D, E and F, by taking one or the other horn of a dilemma. The subject is given a sheet of paper bearing the letters A to J on the left margin and is asked to write his answers opposite the letters corresponding to the lettering of the questions. The correct answer to these questions is so evident that no consensus of opinion was established, and the scores are based on the author's opinion that all the answers are in the negative or are to be found in the first of the two alternatives offered.

Stimulus: "Read these questions over and when you are sure you understand one write your answer to it on this sheet, and then try the others in the same way. They are meant to try your knowledge of right and wrong, so answer them just as you think they ought to be answered."

Scoring: For a comparative study of the value of each question a record of the answers to each is kept. For an evaluation of the work of each subject in this test the percentage of correct answers is noted.

LABORATORY OF MASSACHUSETTS REFORMATORY HOSPITAL.

ETHICAL PERCEPTION TEST.

A. Does the world owe every man a living whether he earns it or not?

B. While A and B are in partnership, A cheats one of the firm's customers out of $200. Would B be doing right in keeping his half?

C. If a man who has stolen money and hidden it is caught and serves his sentence, has he a right to the money?

D. After breaking the law and serving his sentence, should a man make up his mind not to break the law again, or not to get caught again?

E. When money or property is wrongfully taken, or used by some one not the owner, the offence is sometimes politely called embezzling, or hypothecating, or misappropriating, or borrowing, instead of stealing. If one of the long words is used in speaking of the offence is the guilt of the thief the same or is it less?

F. If an apple or a peanut is that which is wrongfully taken, is the thief as guilty of stealing as if he wrongfully took $1000, or is he less guilty of stealing?

G. When a law-breaker is caught and serves his sentence, does his serving his sentence give him the right to break the law again?

H. If a man finds a counterfeit bank-note with his good money and cannot tell from whom he received it, has he a right to pass it?

I. Suppose that A has hired B for a couple of days and the work being done owes him $5. One day they meet at the cashier's window of a bank. As A turns away with his money, he drops a $5 note. Has B a right to keep the bank-note as his pay?

J. Suppose that the day before their meeting at the bank B had asked A on the street for the money, and that A, angry because dunned on the street, had refused to pay him, and had abused and insulted him for asking. Has B a right to the money he sees A drop?

12. ETHICAL DISCRIMINATION TEST.[8]

This test is not a direct measure of morality. It is an intelligence or judgment test employing ethical entities as integers. Morally defective prisoners usually show intellectual defect also to a greater or lesser degree; but this is not necessarily so, for there are cases of moral defectiveness in which the intelligence is unimpaired. When a subject is defective both morally and intellectually, intelligence tests and expert observation reveal the latter defect; but the moral defectiveness may escape detection. It is generally the case that moral defectiveness is unsuspected until the subject has lived long enough to demonstrate his unfitness by accumulated experiences of disaster. Other tests as yet not available are needed to demonstrate moral defectiveness. To test moral stamina or the ability to resist temptation directly, two variables must be considered, the strength of the temptation and the strength of the resisting power of the subject and each be measured at the moment of action, obviously a difficult proposition. Intelligence is capable of expression and so is susceptible of measurement by known standards; but moral stamina is like steam under pressure or any other potential force; it cannot be measured without special means. Supposititious questions do not serve the purpose of one seeking to measure the ability to resist temptation.

These considerations are a sufficient explanation of the fact

[8] The author now proposes three of these tests: A—Offences; B—Meritorious Acts, and C—Ambitions.

that the tests chosen do not show moral defectiveness in the subjects examined. The cases of moral defectiveness to be pointed out in the conclusion are found to be such only by a study of the life of the individual, *i. e.*, on the basis of the clinical notes.

Some criterion of the moral worth of a subject of the class under investigation is essential, however, to a proper understanding of his mentality and to a correct judgment of the degree of his responsibility; and some insight may be gained by this test into the intellectual and moral "manner of the man" from a study of his arrangement in the order of their worth of ethical entities of varying degrees of gravity or worth.

Apparatus: One large card numbered 1–10 in the margin and 10 strips of cardboard each bearing a proposition expressing an offence and a letter of the key-word EPICANTHUS. In Table I the ethical integers are represented as normally arranged. The normal arrangement was found by submitting the series of offences to 15 persons of mature judgment and of some experience with offenders and their offences for arrangement: three physicians, three Reformatory officers, one psychologist, one lawyer and seven justices in several of the state courts. The consensus of the opinions thus obtained was calculated by finding the M, MV, PE, etc., of the array for each offence.

Stimulus: "Here are 10 offences to be arranged in the order of their gravity. Read them all over and find the one of least gravity or consequence and place it opposite 1. When you find the worst one place it opposite 10 in much the same way you were asked to arrange the weighted boxes. Place at 2 the offence which is next worse than No. 1 and then the one of next greater gravity at 3 and so on. You see there is just one correct arrangement and a great many chances for mistakes, so be careful and when you have finished look them all over to see if there are not some changes you want to make. Sometimes these last changes make the difference between a right arrangement and a wrong one. Take all the time you need. This test is not timed. When you are satisfied with your work let me know."

Scoring: Use is made of the card device (page 536) to ascertain the arrangement of the integers which is recorded and later evaluated as in the arrangement of the weighted boxes in the weight discrimination test.

TABLE I.—*Ethical Discrimination Test, Transmutation*

Offences	Frequencies										Measures				
	1	2	3	4	5	6	7	8	9	10	Med.	Mode	Av.	A. D.	P. E.
Reformatory Group (100)															
To take two or three apples from another man's orchard	46	2	37	2	0	0	7	4	1	1	3.05	1	2.69	1.44	2.23
To take a cent from a blind man's cup	28	14	30	16	0	1	3	6	1	1	3.27	3	3.04	1.46	1.3
To break windows for fun	11	15	19	16	15	9	4	7	2	2	4.32	3	4.13	1.8	1.45
To throw hot water on a cat or in any other way cause it to suffer needlessly	5	23	3	18	14	14	2	11	8	2	5.1	2	4.80	2.05	2.5
To break into a building to rob it	0	11	4	17	20	15	14	10	5	4	5.9	5	5.55	1.73	1.6
To take money as "Graft" or "Rake Off" when you are a city or government official	0	13	1	12	19	16	6	12	15	6	6.32	5	6.01	1.97	2.4
To try to kill yourself	3	8	2	6	17	14	16	14	9	11	6.5	5	6.33	1.83	1.81
To get a nice girl into family way and then leave her	4	5	2	6	9	14	12	16	21	11	7.9	9	6.84	2.01	2.1
To set fire to a house with people in it	3	6	0	4	6	12	20	9	24	16	7.99	9	7.21	1.97	1.95
To shoot to kill a man who runs away when you try to rob him	0	3	2	3	1	7	14	11	14	45	9.7	10	8.33	1.69	1.82
Rindge School Group (12)															
To take two or three apples from another man's orchard	8	0	4	0	0	0	0	0	0	0	1.75	1	1.66	.9	.5
To take a cent from a blind man's cup	2	0	8	1	0	0	1	0	0	0	3.6	3	3.1	.8	.08
To break windows for fun	2	2	0	7	1	0	0	0	0	0	4.3	4	3.25	1.16	.65
To throw hot water on a cat or in any other way cause it to suffer needlessly	0	5	0	0	2	3	1	1	0	0	5.5	2	4.42	2	2.5
To break into a building to rob it	0	1	0	2	2	4	1	1	0	1	6.2	6	5.83	1.53	1.33
To take money as "Graft" or "Rake Off" when you are a city or government official	0	1	0	1	3	4	1	2	0	0	6.2	6	5.66	1.22	1.12
To try to kill yourself	0	1	0	1	3	1	2	1	2	1	6.5	5	5.58	1.99	1.5
To get a nice girl into family way and then leave her	0	2	0	0	1	0	3	3	3	0	7.5	8	6.75	1.87	1.5
To set fire to a house with people in it	0	0	0	0	0	0	0	1	3	8	10.3	10	9.6	.55	.55
To shoot to kill a man who runs away when you try to rob him	0	0	0	0	0	0	4	2	4	2	8.5	9	8.33	1	1
Norm Group (15)															
To take two or three apples from another man's orchard	15	0	0	0	0	0	0	0	0	0	1	1	1	0	0
To take a cent from a blind man's cup	0	4	11	0	0	0	0	0	0	0	3.36	3	2.73	.39	.57
To break windows for fun	0	5	4	3	1	0	2	0	0	0	3.75	2	3.53	1.3	1.47
To throw hot water on a cat or in any other way cause it to suffer needlessly	0	4	0	8	1	2	0	0	0	0	4.5	4	3.8	.96	.2
To break into a building to rob it	0	0	0	1	6	7	0	1	0	0	6.3	6	5.6	.7	.63
To take money as "Graft" or "Rake Off" when you are a city or government official	0	2	0	2	2	2	3	4	0	0	6.5	8	5.8	1.7	2.1
To try to kill yourself	0	0	0	1	2	3	4	4	1	0	7.5	7	6.73	1.12	1.37
To get a nice girl into family way and then leave her	0	0	0	0	3	1	3	2	5	1	8 5	9	7.53	1.43	1.5
To set fire to a house with people in it	0	0	0	0	0	0	3	2	8	2	9.37	9	8.6	.8	.5
To shoot to kill a man who runs away when you try to rob him	0	0	0	0	0	0	0	2	1	12	10	10	9.66	.54	.5

TABLE IV—*Measures of Reformatory and Norm Groups*

Tests	Achievement capacity (minutes)						Weights in series. %						
Measures	Av.	Med.	Mode	A. D.	S. D.	P. E.	Av.	Med.	Mode	A. D.	S. D.	P. E.	R.
Reformatory	17.3	14.9	16	8.6	10.9	7.9	81	86	92	12	16.5	11.5	0
Norm	52.5	36	..	37.2	45.5	36.6	90.7	94	92	5.1	7	4	..
Tests	**Ethical discrimination. %**						**Association. %**						
Measures	Av.	Med.	Mode	A. D.	S. D.	P. E.	Av.	Med.	Mode	A. D.	S. D.	P. E.	R.
Reformatory	62.5	67.4	72	15.5	19.2	13.9	9.2	9.4	9	2.83	3.38	2.7	−.15
Norm	71.2	72	..	6.5	7.7	6	27*	...	..	....	....	...	.....
Tests	**Ethical perception. %**						**Calculation. %**						
Measures	Av.	Med;	Mode	A. D.	S. D.	P. E.	Av;	Med.	Mode	A. D.	S. D.	P. E.	R.
Reformatory	78.7	91.6	90	14.2	18.1	13.9	74.1	85.1	100	19.5	22.5	16.9	−.46
Norm	96	100	100	5.6	6.6	4.3	92	100	100	9.6	12.5	10	+.39
Tests	**Extent of movement by Av. error (mm.)**						**Cancelled numeral. %**						
Measures	Av.	Med.	Mode	A. D.	S. D.	P. E.	Av.	Med.	Mode	A. D.	S. D.	P. E.	R.
Reformatory	21.8	19.3	15	11.7	14.8	9	96.9	98.5	99	2.8	4.4	2.07	−.09
Norm	6.2	1.4	1	6.6	7.9	5.6	99.3	99.9	100	.55	2.1	.5	+.62
Tests	**Recognition memory. %**						**Tapping**						
Measures	Av.	Med.	Mode	A. D.	S. D.	P. E.	Av.	Med.	Mode	A. D.	S. D.	P. E.	
Reformatory	76.6	82	70	10.1	12.2	7.1	66.9	67.2	66	7.9	11.2	6	
Norm	80	80.5	80	6.7	10.8	5	72	71.4	71.9	1.3	1.7	1.3	
Tests	**Three hole**												
Measures	Av.	Med.	Mode	A. D.	S. D.	P. E.							
Reformatory	14.6	14.9	14	1.8	2.5	1.7							
Norm	16.8	16.6	16.6	3.4	4.5	3.7							

* Highest possible Av. %.

59	60	61	62	63	64	65	66	67	68	69			
5	16	17	18	21	15	29	19	18	20	20			
	1016		1020				1096		1034				
48		1084		1173		1586		152		136			
	526		566		648		574		584				
49		558		534		588		580		576			
2	2	4	1	2	3	4	9	2	3	2			
2	2	4	1	1	2	2	1	1	1	2			
0	0	36	2	1	150	0	3	0	100	50			
1	2	1	1	1	1	1	1	4	1	2			
3	1	2	2	3	2	2	2	1	3	1			
3	5	3	3	2	4	3	3	3	2	3			
4	4	4	4	4	5	4	4	5	4	4			
6	9	5	5	4	3	5	6	2	6	5			
5	3	6	7	5	6	6	5	6	5	7			
8	6	7	6	7	8	7	7	7	7	6			
7	7	9	8	8	7	8	8	8	8	8			
10	8	8	10	9	9	9	9	10	9	9			
9	10	10	9	10	10	10	10	9	10	10			
8	72	96	92	72	88	100	96	80	92	92			
	534		550	221	255		545		570				
4		550		221		330		401		450			
3	17	15	23	15	148	17	15	504	4	54			
10	100	998	100	100	998	100	100	90	100	100			
9	59	68	68	67	62	81	84	73	69	68			
2	15	14	17	16	18	25	15	16	12	16			
9	429	79	129	21	16	168	114	44	49	16			
3	0	1	4	6	2	6	0	1	0	1			
	235		238		334		537		535				
3		317		268		420		361		3			
10	100	70	80	100	90	90	100	70	100	60			
5	18	19	20	21	23	30	12	33	21	17			
	485		493		514		565		414				
35		951		627		943		998		136			
2	15	12	12	14	26	40	14	14	12	6			
0	3	0	0	0	0	0	0	0	0	0			
	495		558		123		130		107				
08		133		12		630		949		10			
0	90	90	60	80	80	70	80	70	80	90			
0	60	70	100	90	90	90	100	90	90	70			
1	3	1	3	3	1	1	1	1	1	3			
3	1	4	4	1	3	3	2	2	3	4			
3	8	3	1	4	5	7	3	3	4	8			
6	4	2	5	2	6	5	4	4	2	1			
5	2	5	2	9	4	2	5	8	5	2			
7	9	6	8	5	2	9	7	6	6	9			
7	5	7	9	6	8	10	6	7	9	5			
9	7	8	10	8	9	9	8	10	7	7			
7	6	9	6	7	7	6	9	5	10	6			
9	10	10	7	10	10	8	10	9	8	10			
10	60	92	56	72	72	52	96	80	80	50			

1	16	86	63	63	51	100	86	93	63	6			
6	56	60	46	60	66	56	60	79	92	13			
5	20	56	56	50	26	90	92	42	61	5			
2	52	33	82	65	89	100	53	33	12	6			
9	97	20	99	71	56	99	34	13	6	5			
4	72	47	79	57	82	6	36	61	42	6			
3	86	66	17	80	71	55	100	58	80	5			
9	76	38	80	30	23	87	12	61	47	7			
6	72	72	6	66	46	16	46	16	46	7			
5	19	32	100	55	83	85	100	83	85	8			
8	39	96	32	58	58	23	100	78	71	2			
	205		203		631		719		610				
73		686		625		675		545		62			
2	55		545		542		653		553				
		551		568		644		495		5			
5	54	56	56	58	58	59	60	61	64	6			

SUBJECTS SERIALLY ARRANGED IN ORDER OF EFFICIENCY.

Subjects	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
AGE	15	17	19	18	20	16	18	15	21	21	18	25	17	17	20	22	16	22	21	19	18	20	17
WEIGHT (lbs)	91½	104½	127	135½	127	111½	91	101½	100	136½	147	125½	98½	106½	134½	137	105½	127½	122½	107½	115½	110	116
HEIGHT (ft.-in)	5-0½	5-4	5-6½	5-0½	5-4½	5-3	4-7½	5-3½	4-10½	5-5½	5-7½	5-7½	5-1½	5-4½	5-8½	5-6½	5-1	5-4½	5-4½	5-3½	5-2½	5-3½	5-4½
ARRESTS	5	2	4	10	5	2	1	2	3	6	3	7	2	6	2	3	1	3	1	2	4	1	1
CORRECTIONAL INSTITUTIONS	3	2	4	2	3	1	1	1	2	4	2	4	2	2	2	2	1	4	1	1	2	1	1
TRUANCIES	3	100	*	*	3	*	10	200	200	225	0	2	30	68	20	10	1	0	0	4	50	0	6
I. WEIGHT DISCRIMINATION TEST, SERIAL ARRANGEMENT 1	8	3	3	3	1	1	1	5	1	2	1	1	1	1	1	2	1	5	1	3	2	1	5
2	5	5	1	4	3	4	2	1	5	1	3	5	3	2	2	3	5	1	4	1	1	2	3
3	9	2	4	9	4	3	3	2	4	3	4	7	2	3	4	4	4	2	2	6	3	3	2
4	7	1	2	5	5	2	4	4	2	7	7	2	9	5	3	1	3	4	6	4	5	4	1
5	10	6	5	7	2	8	6	3	3	8	2	3	7	4	7	6	2	3	9	8	4	5	4
6	3	8	7	1	7	5	5	6	6	10	6	4	8	10	6	5	8	7	8	5	6	7	6
7	6	7	8	8	6	6	7	8	7	9	5	9	5	8	5	7	6	8	5	2	10	6	7
8	1	10	9	6	9	10	8	7	10	4	8	8	4	6	8	9	7	6	3•	10	9	9	10
9	4	4	10	10	8	7	9	10	8	5	9	6	6	7	9	10	9	9	10	9	7	8	8
10	2	9	6	2	10	9	10	9	9	6	10	10	10	9	10	8	10	10	7	7	8	10	9
%	24	60	72	40	80	72	96	76	76	48	80	64	60	76	88	76	76	76	56	60	76	92	72
Time (min.- sec.)	140	245	140	520	430	330	545	3.	245	325	410	415	130	315	315	315	135	230	115	2.	5.	225	145
II. EXTENT of MOVEMENT TEST	+.75	-5.3	-4.12	-1.18	+2.72	-7.89	-2.9	-3.5	-2.3	-2.6	+9	-.54	-3.76	-1.45	-6.3	-3.18	-7.	-3.1	-2.36	-2.36	-1.5	-5.24	+2.7
III. COLOR VISION TEST	63	77	70	90	85	100	98.5	100	100	100	40	100	100	98.5	100	100	100	100	100	99.8	98.5	96.6	95
IV. TAPPING TEST	60	53	56	63	26	58	47	51	54	64	66	42	76	72	58	52	57	74	68	52	63	63	70
V. THREE HOLE TEST	11	18	12	17	14	11	10	12	13	11	14	11	13	9	13	14	13	11	15	13	14	14	14
VI. ACHIEVEMENT CAPACITY TEST (minutes)	4	15	12½	18½	14½	26	78	16½	14½	5	7½	10½	11½	9½	3½	6½	29½	9½	18½	4½	7	24½	6½
VII. CANCELLED NUMERAL TEST	0	7	30	4	0	17	7	14	0	1	1	2	10	0	2	1	11	0	2	5	1	1	3
Time (min.- sec.)	410	327	410	415	450	3.	4.	335	415	322	440	285	329	337	245	334	240	310	238	228	3.	335	415
VIII. CALCULATION TEST, 31-3 to 1	10	0	50	10	90	20	0	100	50	40	50	70	50	40	70	70	50	70	70	80	70	50	80
Time (seconds)	55	0	65	150	54	56	0	21	45	38	20	110	34	40	49	17	34½	30	73	40	50	85	35
IX. ASSOCIATION TEST: % Common Reactions	668	256	490	875	172	675	844	128	959	503	453	1327	667	1108	458	1043	608	696	1372	7.7	698	1138	1041
No. Individual "	18	25	25	9	36	18	17	13	28	22	6	18	5	16	16	8	23	17	5	21	15	11	9
No. Doubtful "	1	1	0	0	1	0	0	0	0	2	0	1	1	0	2	1	0	0	1	2	0	1	0
Av. Reaction Time	16	17.7	8.	12.18	16.6	13.6	16.5	9.5	30	9.27	18.8	14.3	10.1	17.6	14.55	10.26	10.3	8.8	11.6	10.2	13.7	12.58	8.76
X. RECOGNITION MEMORY TEST %	70	70	50	50	70	80	80	70	60	50	70	70	80	90	90	60	80	60	70	40	80	90	80
XI. ETHICAL PERCEPTION TEST %	30	50	70	30	40	50	90	80	60	80	30	80	60	80	90	70	70	100	50	70	70	70	50
XII. ETHICAL DISCRIMINATION TEST, SERIAL ARRANGEMENT 1	10	3	7	3	3	3	7	1	1	1	1	1	7	3	9	3	1	1	1	8	1	1	1
2	1	7	2	1	8	8	3	7	4	3	6	4	2	8	10	1	3	2	4	3	4	3	3
3	8	10	1	10	4	7	6	3	3	4	2	5	6	5	5	5	8	3	2	2	3	9	7
4	9	5	10	9	9	10	1	6	2	8	9	8	8	2	6	6	2	4	8	1	8	4	8
5	4	4	6	5	10	9	2	10	5	2	4	3	3	7	8	8	9	9	9	4	7	2	10
6	2	9	4	6	7	4	5	8	9	9	8	9	10	9	2	4	6	5	10	5	9	10	2
7	5	6	9	7	5	2	4	5	7	5	3	2	1	1	4	10	5	6	3	10	2	5	4
8	3	1	8	2	1	5·	9	4	6	6	10	7	5	4	3	2	4	8	5	6	6	6	9
9	6	2	3	4	2	1	10	9	8	7	5	10	4	6	1	9	7	7	6	7	5	8	5
10	7	8	3	8	6	6	8	2	10	10	7	6	9	10	7	7	10	10	7	9	10	7	6
%	24	28	40	44	20	12	52	44	80	64	48	52	32	40	8	52	60	84	44	56	56	56	40

Subjects	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
AGE	19	15	16	18	18	19	16	21	17	20	20	20	18	19	17	17	16	18	16	20	16	19	[illegible]
WEIGHT (lbs)	133½	77½	91½	123½	123½	110	118	133½	93	127½	131½	108	134½	131½	104	129½	133½	120	143½	136½	100	103½	[illegible]
HEIGHT (ft.-in)	5-1½	4-9½	5-4½	5-8	5-7½	5-3	5-6½	5-7½	4-11½	5-7½	5-5½	5-3	5-8½	5-6	5-4½	5-8½	5-7½	5	5-6½	5-9	5-1½	5-9	[illegible]
ARRESTS	4	2	2	4	2	7	1	7	3	3	4	20	1	3	2	4	2	2	6	2	1	4	6
CORRECTIONAL INSTITUTIONS	4	2	2	2	2	3	1	6	1	3	3	8	2	1	2	2	3	2	2	1	1	5	3
TRUANCIES	0	0	*	*	140	90	100	0	0	0	0	*	*	52	10	20	100	*	25	0	0	72	[illegible]
I. WEIGHT DISCRIMINATION TEST, SERIAL ARRANGEMENT 1	1	1	9	3	2	1	3	1	2	2	1	2	4	1	2	1	1	1	2	1	1	1	1
2	2	7	7	10	1	2	5	3	1	3	3	1	3	2	1	2	4	4	3	3	3	2	2
3	4	8	5	6	3	3	1	2	3	1	2	3	2	3	3	3	2	2	1	2	2	3	4
4	3	2	1	4	4	4	4	4	7	4	4	5	1	5	4	4	5	3	5	5	5	4	3
5	5	3	8	2	5	5	7	5	5	5	6	4	5	4	5	5	3	5	6	4	4	5	6
6	7	6	6	1	6	7	8	7	8	6	7	7	7	7	6	7	10	6	7	8	6	6	5
7	8	4	3	5	8	6	2	6	6	8	5	8	6	6	7	6	7	10	4	7	9	7	7
8	10	5	2	7	7	8	6	8	4	10	8	9	9	8	8	9	6	7	10	6	7	8	8
9	6	9	4	9	9	9	9	10	9	7	9	6	8	9	10	8	9	9	8	10	8	9	9
10	9	10	10	8	10	10	10	9	10	9	10	10	10	10	9	10	8	8	9	9	10	10	10
%	80	60	28	48	92	96	64	88	76	80	88	80	76	92	92	92	72	80	72	80	84	100	[illegible]
Time (min.- sec.)	330	415	4.	230	615	422	211	240	230	272	335	135	230	245	620	205	3.	430	2.	240	645	10.	[illegible]
II. EXTENT of MOVEMENT TEST	-2.8	-2.32	-2.76	-3.36	-2.46	+2.5	-2.5	-6	-1.5	-4.78	-3.	-3.35	-2.	-.76	-2.82	-2.2	-3.85	-3.7	-3.35	-2.44	-2.9	-2.8	+4.[illegible]
III. COLOR VISION TEST	99.8	100	100	100	100	100	100	100	100	100	100	53	37	96.7	100	100	100	87	99.8	96.7	100	100	[illegible]
IV. TAPPING TEST	65	56	70	67	58	54	81	62	67	68	69	76	66	66	66	66	66	88	48	68	60	58	[illegible]
V. THREE HOLE TEST	11	14	14	14	15	12	16	15	12	13	18	19	15	14	12	13	18	15	16	16	12	16	[illegible]
VI. ACHIEVEMENT CAPACITY TEST (minutes)	15½	19	37½	7½	10½	12½	37½	4½	8½	14½	8½	29½	6½	15½	23½	16½	13	11½	15	10½	16	16½	[illegible]
VII. CANCELLED NUMERAL TEST	6	0	3	16	1	0	4	2	9	1	0	2	1	12	1	0	3	5	1	2	0	0	3
Time (min.- sec.)	345	350	230	405	310	447	336	350	346	430	305	338	430	338	410	330	310	445	310	311	250	345	[illegible]
VIII. CALCULATION TEST, 31-3 to 1	60	80	0	70	80	100	80	100	70	60	80	90	40	80	70	60	100	40	90	100	70	80	[illegible]
Time (seconds)	50	48	0	40	24½	29	39	26	32	70	58	47	30	32	50	47	20	18	30	41	28	105	[illegible]
IX. ASSOCIATION TEST: % Common Reactions	373	365	10.2	1391	334	1235	471	542	318	943	674	499	436	433	604	1417	1023	826	634	974	437	1085	[illegible]
No. Individual "	21	29	11	3	27	4	16	13	10	10	14	19	21	16	36	5	12	19	26	6	21	7	[illegible]
No. Doubtful "	0	0	1	0	2	0	0	1	1	0	0	0	0	0	1	0	0	0	9	0	0	1	[illegible]
Av. Reaction Time	13.8	11.9	16.3	17.3	11.7	16.8	5.29	10.3	6.9	7.35	10.5	6.9	9.6	11.33	8.65	6.9	11.78	8.13	9.1	11.12	7.92	11.9	[illegible]
X. RECOGNITION MEMORY TEST %	90	80	90	90	70	70	70	60	80	70	70	80	90	60	80	70	80	70	80	80	80	80	[illegible]
XI. ETHICAL PERCEPTION TEST %	80	90	80	80	40	70	60	60	50	90	80	80	80	70	90	90	90	100	80	80	100	70	[illegible]
XII. ETHICAL DISCRIMINATION TEST, SERIAL ARRANGEMENT 1	1	2	7	3	1	1	3	1	8	3	7	4	1	3	3	3	3	1	3	3	1	1	1
2	2	1	3	1	3	3	1	2	4	1	1	7	3	1	2	8	8	3	1	2	3	4	[illegible]
3	3	3	5	5	4	4	5	3	5	5	4	3	6	9	1	1	1	5	5	1	5	2	6
4	8	5	2	9	8	8	2	6	9	8	3	1	4	5	4	6	7	2	9	5	4	3	2
5	4	4	9	4	2	6	7	4	3	4	6	8	7	2	5	4	5	6	8	7	6	5	7
6	6	6	8	2	5	5	4	7	2	2	8	6	2	4	8	9	4	10	2	9	2	6	[illegible]
7	10	7	1	7	6	7	8	8	6	9	5	9	8	6	6	2	2	8	7	4	7	7	[illegible]
8	5	9	10	6	7	10	9	5	1	6	2	5	10	7	9	5	9	4	10	6	9	8	[illegible]
9	9	8	4	10	10	9	6	9	10	7	9	10	5	8	7	7	6	7	6	10	8	9	[illegible]
10	7	10	6	8	9	2	10	10	7	10	10	2	9	10	10	10	10	9	4	8	10	10	[illegible]
%	72	88	32	60	72	64	68	84	32	60	60	44	64	64	80	48	52	64	44	64	80	90	[illegible]

* Amounting to more than half the time.

EFFICIENCY SCORES EXPRESSED in RANK EQUIVALENTS (1 to 100) and TRANSMUTED. (Computations on III omitted)

Subjects	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
I	1	9	16	3	33	16	33	23	23	6	33	14	9	23	51	23	23	23	8	9	23	63	16
II	55	4	10	76	32	1	26	16	46	34	79	87	13	67	96	20	2	21	40	40	60	5	33
IV	21	9	12	31	1	17	3	6	10	37	42	2	82	74	17	7	14	77	31	7	31	31	68
V	3	89	12	82	33	3	2	12	21	3	33	3	21	1	21	33	21	3	52	21	33	33	33
VI	2	51	37	65	47	79	20	59	48	8	22	31	35	27	1	16	85	28	66	3	18	81	14
VII	19	32	1	12	5	37	14	18	13	45	8	91	27	25	74	87	65	50	85	67	62	24	13
VIII	5	1	13	4	32	6	1	80	19	18	65	9	29	16	27	76	28	41	15	36	25	7	40
IX	9	11	21	35	1	18	18	78	6	21	2	53	34	50	12	66	26	24	69	43	17	84	70
X	16	16	2	2	16	46	46	16	6	2	16	16	46	46	72	6	46	6	16	1	46	72	46
XI	3	14	32	3	7	14	32	55	19	55	9	55	19	55	83	32	32	100	14	32	32	32	14
XII	6	7	11	19	4	2	3	14	78	45	20	23	8	11	1	33	34	84	14	32	32	32	11
Total	140	328	174	327	211	334	198	377	291	376	303	380	323	395	455	387	381	422	410	391	379	404	351
Average	12.7	22.7	15.8	24.7	19.2	20.7	18	34.5	26.5	34.9	27.5	34.9	29.3	34.1	41.3	35.4	34.6	41.2	37.5	26.5	34.9	42.2	32.5
Median	6	11	12.5	14	16	16	18	18	20	20	22	23	27	27	27	27.5	28	28	31	32	32	32.5	33

Subjects	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
I	33	8	2	6	63	86	14	51	23	33	51	33	23	63	63	63	16	33	16	33	46	100	[illegible]
II	26	42	31	17	36	98	35	84	60	6	23	18	50	82	29	48	12	14	18	37	26	30	[illegible]
IV	40	12	68	50	17	10	90	26	50	56	61	82	42	42	42	42	42	97	4	56	21	17	[illegible]
V	3	33	33	33	52	12	65	52	12	21	89	97	52	33	12	21	89	52	65	65	12	65	[illegible]
VI	54	67	94	23	30	37	93	4	53	46	25	86	14	55	75	63	43	4	51	29	56	59	[illegible]
VII	22	28	81	4	53	7	30	26	20	10	78	34	10	21	16	40	44	3	53	49	73	30	[illegible]
VIII	21	32	1	34	58	63	37	71	39	42	24	35	23	45	25	22	83	45	35	42	45	12	[illegible]
IX	1	5	29	44	4	41	51	25	46	72	32	40	14	1	37	94	52	58	36	49	27	48	[illegible]
X	72	46	72	72	16	16	16	6	46	16	16	46	72	6	46	16	46	16	46	46	46	46	[illegible]
XI	55	83	55	55	7	32	19	19	14	83	55	55	55	32	83	83	83	100	55	55	100	32	[illegible]
XII	58	44	8	39	58	45	52	84	8	39	34	14	45	45	78	20	23	45	14	45	78	96	[illegible]
Total	393	450	474	377	344	447	382	433	371	424	443	540	410	432	506	512	533	467	413	506	530	535	[illegible]
Average	35.7	40.9	43.7	34.3	35.8	40.6	45.7	41.2	33.7	38.5	44.8	49.1	36.0	32.3	46.	41.5	48.5	42.6	37.5	46.	48.2	48.6	[illegible]
Median	33	33	33	34	36	37	37	38.5	39	39	39	40	42	42	42	42	44	45	46	46	46	46	[illegible]

TABLE II

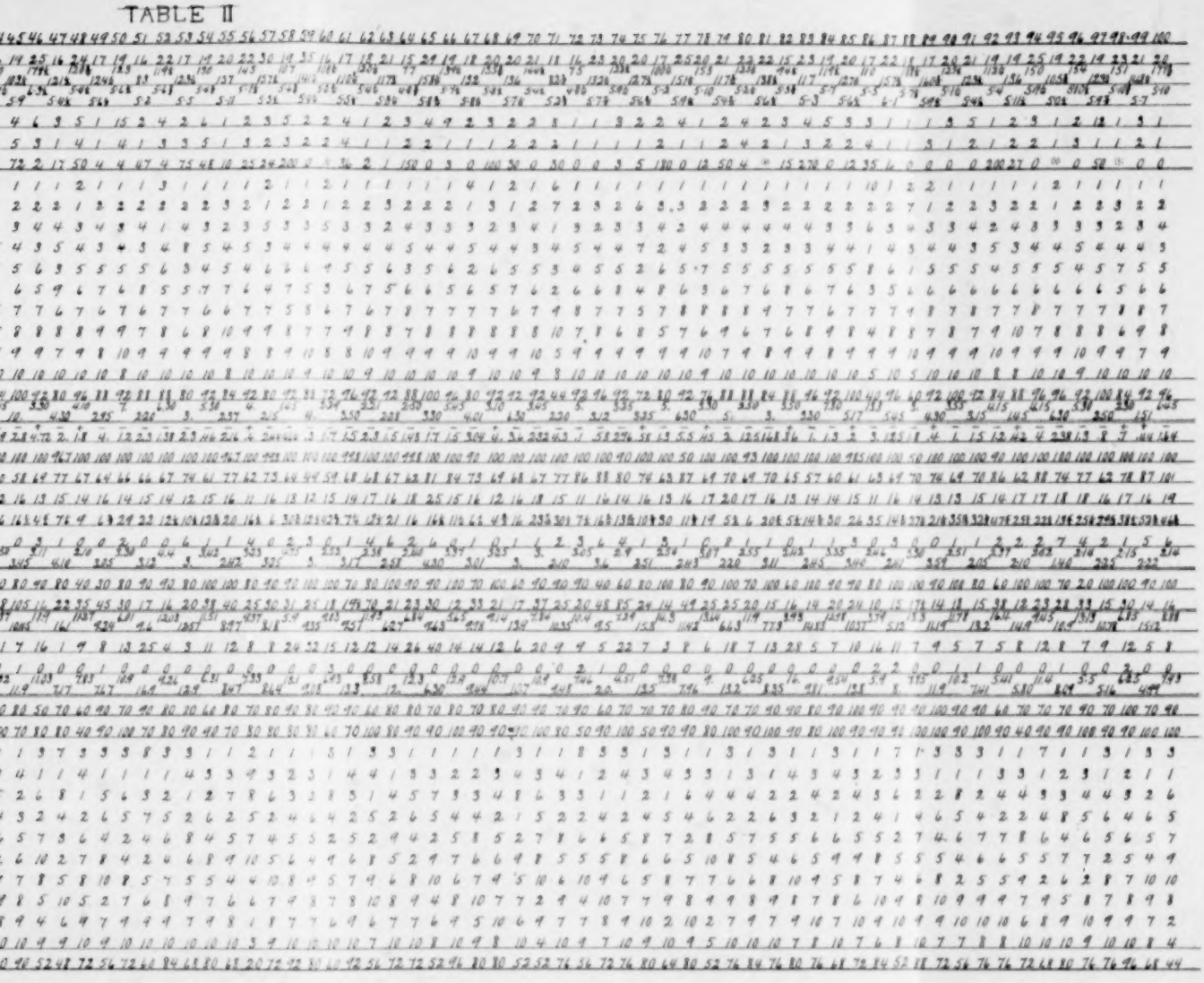
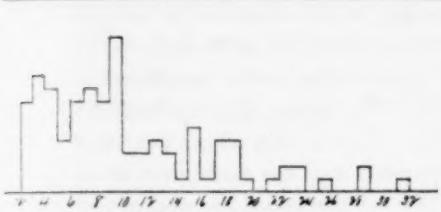


TABLE III

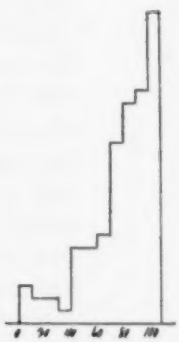
Table V. Graphs.



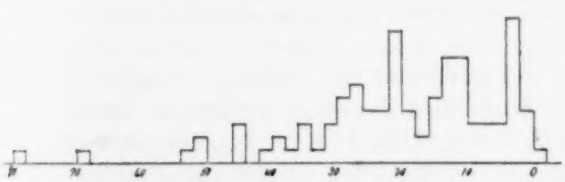
Kinetic Will

Ethical Standard

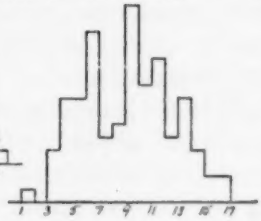
Ethical Perception. Rec Memory



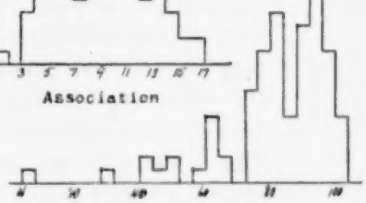
Calculation.



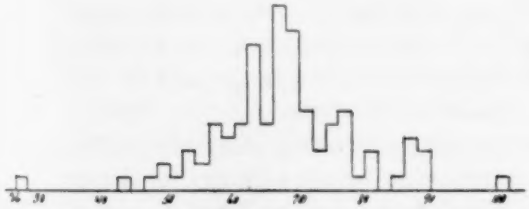
Extent of Movement.



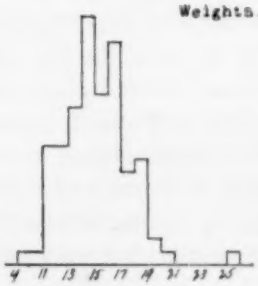
Association



Weights.

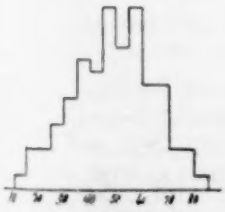


Tapping.

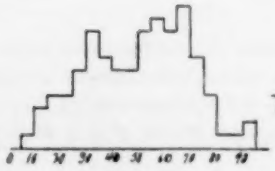


Three Hole

Cancelled Numeral



Averages



Medians

After transmutation.

Computations.

The adoption of a method of scoring which consists in assigning to each performance of each test a single numerical value either an efficiency measure or a measure of error enables the preservation of concise data to which to apply the methods of the science of mental measurements. The scores of all the tests must have a uniform basis of comparison and the same degree of diversity between the lowest and highest; otherwise the potency in the median of the tests the scores of which have small diversity will be diminished. The scores of all the tests are given a rank which is an expression of relative efficiency in place of an expression of absolute efficiency by ranking the lowest score as 1 and the highest as 100, ties ranking equally. After this change the potency of each test as expressed in the final measures is uniform.* To these ranks the process of transmutation is applied which transforms *expressions of relative efficiency* into *expressions of relative standing*. The arrays of each subject's ranks after transmutation are measured and the medians arranged in a series from least to greatest, thus determining the relative standing of each subject. (See Tables II and III). Ties are decided by referring to the averages. Without this mathematical evaluation and relative standing given each member of the group by the psychological tests and computations, the clinical and anamnestic information, be it never so full, could not be arranged to give a classification of individuals which did not depend on the personal judgment of the alienist handling the material. By the use of this method the personal judgment of the alienist is needed only to draw the line of demarcation between classes, to detect cases of mental alienation, moral perversion, etc., and to guard against sources of error.

The coefficient of correlation between the frequency of occurrence of facial and cranial asymmetries and other stigmata of degeneracy and intellectual efficiency for this group has not been determined, but apparently it will be rather large and inverse,

*To test the validity of this form of mathematical treatment the actual scores were transmuted and the serial arrangement of the clinical notes thus obtained was compared with the arrangement of Table VI. The parallelism suffered so greatly as to show plainly that a vital error existed.

i. *e.*, the frequency of occurrence of these physical signs is but slightly greater among the defectives.

The following division of the foregoing tests is submitted as a step toward standardization, the ultimate desideratum of all investigators doing research work in the differentiation and classification of morons.

Revised List of Tests.

RETAINED.	REJECTED.
Weight discrimination.	Color vision.
Ethical discrimination.	Tapping.
Achievement capacity.	Three hole.
Extent of movement.	Ethical perception.
Recognition memory.	Association.
Calculation.	
Cancelled numeral.	

It is to be noted that the retained tests are all susceptible of universal application as the language factor plays no necessary part, it being quite possible, as Dr. William Healy suggests, to illustrate the ethical entities employed. Furthermore, the confusing element of previous training appears to have but a minimum effect in the tests of the retained list and the apparatus is easily procurable and portable. With this or some similar system the examiner may visit court rooms or jails and supply himself with the needed data on any case expressed in concise form and available for record as a basis for an alienist's opinion.

Classification.

The basis for the decisions fixing the limits of sub-groups in the serial arrangement furnished by the computations and for the diagnosis of cases of mental alienation or perversion is the record of reactions to the psychological tests, the anamnestic and clinical notes and a rather close familiarity from personal contact and interviews with the subjects.

The lines of demarcation to be drawn in this representative group of subjects which satisfy the practical needs of the institution administration and realize the purposes of this investigation after separating the cases of mental alienation and moral devia-

tion are (1) a maximum limit (see Table VI) for the defectives requiring segregation and (2) a distinction which is not a line made in the members of the defective class between those of an irritable, intractable or erratic disposition and mental habit which unfits them to react well to reformatory discipline, and the other defectives who are mild or stolid but tractable and who react fairly well to their present surroundings, and (3) a line indicating the distinction between normal and subnormal subjects.

TABLE VI—CLASSIFICATION.

Designation of cases of the group diagnosticated solely by alienists' methods on the basis of the clinical findings.	100 cases serially arranged from least to greatest as to mental efficiency on the basis of the computations from the application of the tests.	Classification of 100 cases based on the findings from the application of the tests.	
Visually defective.....	1	Defective..	Defective subjects, those of whom having intractable dispositions (about one-half) should be segregated at once and all of whom could be segregated without injustice.
	2	do.	
	3	do.	
	4	do.	
Insane (dementing).....	5	do.	
	10	do.	
	15	do.	
Sexually perverted.....	19	do.	
Epileptic.....	20	do.	
	26	do.	
	27	Subnormal.	Subjects who are subnormal in mentality, but who are not irresponsible and who react well to reformatory discipline.
Insane (dementing).....	32	do.	
	40	do.	
Morally defective.....	49	do.	
	50	do.	
	51	do.	
	52	do.	
	53	Normal....	Subjects who are normal and responsible intellectually.
Morally defective.....	56	do.	
Sexually perverted and morally defective.	59	do.	
	60	do.	
Morally defective.....	66	do.	
	75	do.	
	80	do.	
Morally defective.....	84	do.	
	90	do.	
Morally defective.....	91	do.	
Suicide.....	99	do.	
	100	do.	

Referring again to Table VI the maximum limit of the defective class according to our definition which should be or might be segregated for educational instead of punitive treatment falls at or near case 26 in a border-line group of eight cases (22 to 30). Intensive study and longer observation are needed to determine the status of these individuals. To these border-line cases should be added one (56) brought into them because of moral defect. Three cases (1, 5 and 20), should be withdrawn from the sub-group of defectives as two are cases of mental alienation and in one (1) the mental defect is only apparent. These modifications leave the number of defectives to be segregated standing at 24. Of this 24 per cent which could not be expected to keep out of criminality if released, a certain part, probably one-half, could and do react fairly well to ordinary reformatory discipline. They are stolid, plodding subjects without the truculence or aggressiveness which antagonizes discipline. These need not be separated at once, as their influence in the Reformatory is not so distinctly detrimental to the other prisoners as that of the class mentioned below; nevertheless their defectiveness demands that they be committed to a suitable institution instead of being sentenced to a reformatory for normally minded prisoners. About the same number of cases scattered through the sub-group of defectives are fitted by lack of capacity and by peculiarity of temperament to be segregated at once. The point of division between normal and subnormal subjects falls at or near subject 52.

Clinical Notes.

Clinical notes always have formed a part, sometimes the major part of the alienist's basis for an opinion on the classification of individual defectives. The data from psychological measurements and the clinical information check up and illuminate each other and enable an advance toward the ideal system of examination, *i. e.*, one which reveals all the essential facts.

In securing these notes every effort is made to exclude the personal equation and to present facts only, free from distortion at the hands of the author as well as in the course of transmission to him; and it is a contribution to this end that all the clinical notes were taken and edited before the relative standing

of the subjects as determined by the tests was established. It will be observed that very many of the facts of history have been confirmed from some extraneous source and that most of the material is objective rather than subjective; and further, that the conduct records of the Reformatory and the efficiency records of the institution schools, industrial and night, have been drawn upon to the fullest extent for new material and as a means of checking up observation.

If all the clinical facts were available in these cases to compare with all the psychological findings we might logically expect a close parallelism to be observable between the two series of cases, the one arranged in the order of efficiency on the basis of the clinical notes and the other in the order of efficiency on the basis of the tests; but as the findings in both forms of presentation are obviously incomplete and must be so, absolute parallelism is not to be expected. It will be observed, however, that the parallelism is remarkably consistent.

Although the physical stigmata of degeneracy are mentioned in the appended notes where they are apparent, it will be noted that no weight has been given them in the computations and classification, these being based solely on mental characters.

Conclusions.

The task of collecting data, devising processes and making the computations involved in the presentation of the findings from this first group of subjects has been of course somewhat onerous, especially as a mass of experimental work was done which proved beside the mark, *e. g.*, the correlation of "time" and "work" in the timed tests; but the time required for examining individual subjects by this method now that this foundation group of scores and the computations are available is but little if any more than an equally searching examination without the tests would require; and there can be no doubt that by the use of these tests the examiner's knowledge of his subject's mentality is greatly broadened. The tests of the retained list can be given in an hour unless the subject stands unusually long in the Achievement Capacity Test. The computations are simple when one is familiar with the method and do not require ten minutes if one wishes

only to ascertain the relative standing of a new subject to the existing group.

TABLE VII.

Treatment of a new subject's scores.

Tests.	Efficiency.	Transmutation.
Extent of movement (average error)	.5	87.5
Color vision, %	100	..
Tapping	58	17
Three hole	12	12
Achievement capacity (minutes)	10½	31
Calculation 31 to 1 by 3s, %	40	18
Cancelled numeral, %	88	21
Association (reactions, %)	10	60
Rec. memory, %	70	16
Weights in series, %	68	15
Ethical perception, %	60	19
Ethical discrimination, %	84	89
Total		385.5
Average		35.1
Median		19
Rank in reformatory group		8th

In the above table the actual scores of the "efficiency" column are simply compared with the scores of the group of 100, test by test as given in Table II where identical or very closely approximate scores will be found. The corresponding transmutation value is then found in Table III and for the array thus secured the measures are calculated. The new subject's median of course determines his relative standing in Table VI.

So 80 minutes is ample time in which to apply the tests and find the standing of a subject with relation to the group to which it is then ready to be added. If all alienists dealing with defectives were using this or some similar system which had become standardized the recorded data would have great scientific value.

1. The responsibility of defective delinquents is limited. Therefore they should be committed to a suitable institution instead of being sentenced for punishment with fully equipped misdemeanants.

2. The differentiation of mental defectives of the highest grade is based solely on the measurement of mental characters.

3. Mental characters capable of expression may be measured by applying uniformly properly adapted psychological tests.

4. Cases of moral perversion, sexual deviation, degeneracy, insanity, etc., are not to be diagnosticated by tests adapted to differentiate defectives, but require other and appropriate means of investigation.

5. By computations based on the efficiency scores obtained from the application of appropriate psychological tests the relative standing of each subject of a group may be mathematically determined.

6. The group of scores and computations presented may serve as a nucleus to which new scores may be added, each in its relative standing, by alienists using the same tests and methods of computation.

Clinical Notes.

SERIALLY ARRANGED IN THE ORDER OF THE RELATIVE STANDING OF THE SUBJECTS TESTED AS DETERMINED BY THE COMPUTATIONS.

No. 1. "Visual defect."—An orphan, once on probation as a delinquent child, and once committed to truant school for vagrancy. Eyes are large and prominent. Lips very thick. Ears outstanding. Lacks ordinary manual dexterity. Is self-conscious and awkward. Asks questions; but they are not well chosen. Lost 225 marks in 18 months and took a year to earn "1st grade," that being granted on six consecutive months of perfect conduct.

His remarkably defective vision (astigmatism) was detected and corrected early in his stay and his improvement was rapid thenceforth. He soon learned to read a clock face and was promoted from the illiterate class and did well in both industrial and night schools. This is clearly a case of retarded mental development due largely, perhaps wholly, to uncorrected visual defect.

No. 2.—A pleasant faced boy with twinkling eyes, almost always smiling. In the Boston schools he had to take the 3rd grade over and never finished the 4th; cannot subtract or divide, stumbles and hesitates in trying to read the second reader. School conduct is good. The attempt to teach him to weave failed. He is engaged in the simplest work. He has been sheltered at home. His offense, the first, is breaking and entering. He did not think of the chances of being caught, he says; but was out of work and needed money badly for clothes; so he set out alone to get some in a building.

Face is less full on the left side and right eye is more prominent. Ear lobules are semi-attached. Mouth is prominent and lips hardly cover the slightly protruding teeth.

No. 3.—"Father is a drunkard and criminal." School conduct "is not sly but that of foolish bravado." A farm laborer sentenced for drunkenness. Has a very ordinary face which lacks dignity and strength. He ingenuously boasted of waiting till the early morning hours to avail himself of reduced rates in visiting the cheapest brothels. Denies venereal disease. His conduct record is very poor, he having lost 145 marks in nine months.

He is a fair reader in the class of illiterates. Cannot handle long division.

No. 4.—Is undersized physically and is much retarded in sexual development. Face is asymmetrical and shows lack of development, and the premature secretiveness and sharpness of the street Arab. Chin is narrow and almost infantile. Incisors meet. Ears show a small Darwinian tubercle and partial attachment of the lobules. Left school at 14 to work in a mill and worked in three in two years; was discharged. Has been a tramp but denies drinking.

Here he has been twice reduced to the third grade (all start in the 2nd) and has been locked up four times. He lost 525 marks in 14 months and never attained 1st grade. Work in both industrial and night schools (illiterate division) is very poor, judged by ordinary standards. In conduct he requires constant supervision and restraint. He cannot handle long division well and reads in the fifth reader.

Police record: "Bad reputation. Not disposed to work. Arrested once for idle and disorderly conduct."

No. 5. "Insane."—Failed of promotion at school five times. Arrested four times for vagrancy. Has been a tramp for 2½ or three years. Parents never punished him and never looked him up when he was away. Admits he has been called "queer." Sits with downcast eyes and makes an obvious effort to rouse himself to answer, usually repeating the question. Subsequent examination found him to be dementing and he was sent to the State Farm at Bridgewater. Shop work a failure. He could not be trusted to do simple errands.

No. 6.—After a bad truancy record (see Table I) he reached the 6th grade but failed of promotion four times. He volunteers that at two months of age he was unconscious for five days at the B. C. H., and was "put on ice" (as dead).

Has small features and an immature face. Naso-pharynx is small but shows no adenoids. Has restless, purposeless, choreiform motions of hands, arms, shoulders and features. In the laboratory he was not quick of apprehension, *e. g.*, after the usual stimulus in the association test he was given the first word "table" and he spelled it. He kept up a slight scratching or drumming with finger nails on chair or table which did not seem to be due to shyness or other temporary condition. He reads fairly well and can add and substract, but cannot solve problems in subtraction and has not learned the multiplication tables, though he has been on them

for months. He cannot apply himself long in school and is a disturbing factor there. School record here (illiterate class) is poor. Only simple tasks are required of him.

Police record: "Second arrest. Good home, bad reputation. Not disposed to work."

No. 7.—Discontinued school at the age of 10 as he "could not learn." Face is large and tilts forward so that he peers out from beneath his brows. Habitual expression is a good-natured, deprecating grin. Eyes are much too near together. Features are coarse and show little change of expression. Gait is slouching. Manual dexterity is very small. Has a slight speech defect and speaks in a very low tone. Disregards directions and suggestions.

Set to "burling cloth," he seemed willing but was soon cutting and pulling out pieces the size of coins. He finally learned to do the work fairly well, however, as he did farm work later. In the illiterate class at night school he could read in the second reader and add simple numbers; but could not be taught to subtract. His temperament is phlegmatic and temper amiable; but his grotesque appearance and self-conscious grins make him a disturbing element in school. He does not expect, much less does he command, the respect of the other prisoners. At the first attempt he failed in the association test; but when tried again very slowly and carefully, months later, to complete the score he succeeded.

No. 8.—Got to the 5th grade at 14 in school when he left, against advice, having taken the work of the 2d grade over. Fails on simple examples in short division. Admits he can't master long division though he has been at work on it for a year in the night school. He was a lone worker generally and stole because he was "broke." Has been on probation twice, breaking the last, and is a second comer here. Has been in the House of Correction also. When an error in his division was pointed out to him he promptly explained that he mistook an 8 for a 7; but unfortunately this readiness lacked foresight as an error still remained.

Face and features are large but not illy balanced. Right side is slightly the more full. Confesses onanism.

No. 9.—Never went to school though sent by his parents. "Did not care to go . . . did not care to learn" are his reasons. Gives correctly, after hesitating, the change from $1.00 for a 17 cent purchase. He can divide simple numbers only. He boasts that he is a good reader and can speak two languages. He is easily appealed to by appreciation, but is not quick to see his inconsistencies.

He left home at 18 and has never been back. Has tramped more than he worked he admits. Here he wrecked the plumbing of his cell because he was "mad" (angry). Is a second comer. Police volunteer: "His mind is not quite right. Seems to have a mania for running away." He volunteers he once did a "bit" of six months in jail.

Face and skull are decidedly asymmetrical. Left lobule is semi-attached, the right slightly attached and shows a Darwinian tubercle.

No. 10.—Left school at 14, against advice, to go to work in a shoe shop. His longest job was nearly two years. Has loafed six months. Has "jumped freights" but denies tramping. Is here as a pick-pocket, but volunteers "he has not nerve enough to pick a pocket by himself." Is a jolly, easy-going fellow, the cat's-paw of others. Has drank and patronized fast women. Admits onanism. Never has won 1st grade; so is often under discipline. Has broken parole once.

Lower jaw is heavy and lower incisors meet the upper ones. Ear lobules are attached and attachment extends down a half inch on both sides. Palatal arch is narrow and high.

No. 11.—Left school, against advice, at 14. "I was sick of it . . . sick of going to school." He worked 1½ years in a cotton mill since which time he has kept no place long. Discharged once for drinking. Vagrancy is the charge against him, but one for forgery still hangs over him. Admits onanism but denies other sexual sins.

Stammers. Face is markedly asymmetrical; nose, mouth, jaw and general features participating. Glance instantly avoids the questioner. Lobules are attached. Palatal arch is high and wide. Face shows singularly little change of expression. His changes of attitude are slow and constrained, and his manner is self-abasive and deprecatory.

No. 12.—Showed much indecision in the color vision test, repeatedly advancing and withdrawing a tuft of worsted only to drop it without a decision. He did not attend well, requiring redirecting, and has ill chosen and apparently purposeless shrugs and gestures. In the calculation test he took 110 seconds and required prompting three times.

He is a fourth comer here and had been previously committed to the Lyman school and to a truant school. Is wide between the eyes and has a well shaped skull. Angles of the jaw are prominent. Expression is rather sullen and lacks distinctive character, excepting strength of a kind. The charges against him are truancy, stubbornness, larceny, broken parole and attempted breaking and entering. His conduct record here is "perfect," and his work has been fairly well done.

No. 13.—His last school experience was in a truant school where he spent 27 months. He preferred work to a school opportunity, though he cannot reduce the fractional remainder after his stumbling long division. Has run away from home twice, leading the life of a tramp. He was whipped by his father for truancy, lying, stealing, transgressing sexually with girls, etc. He confesses onanism and gonorrhea. While at work, at 16, he deceived his father as to the wages he received so that he thribbled the spending money allowed him. No sign of remorse or filial regard is in evidence. No ambition other than to go to work on the milk route his father has ready for him appears. Speaks in a soft voice, indistinctly.

Has lost 35 marks but won first grade in first six months here. Industrial school work is fair. Is not in night school. Labor is fairly good.

Police record: "Good home. Father says he will not work and they cannot control him. He is a degenerate."

for months. He cannot apply himself long in school and is a disturbing factor there. School record here (illiterate class) is poor. Only simple tasks are required of him.

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No. 13.—His last school experience was in a truant school where he spent 27 months. He preferred work to a school opportunity, though he cannot reduce the fractional remainder after his stumbling long division. Has run away from home twice, leading the life of a tramp. He was whipped by his father for truancy, lying, stealing, transgressing sexually with girls, etc. He confesses onanism and gonorrhea. While at work, at 16, he deceived his father as to the wages he received so that he thribbled the spending money allowed him. No sign of remorse or filial regard is in evidence. No ambition other than to go to work on the milk route his father has ready for him appears. Speaks in a soft voice, indistinctly.

Has lost 35 marks but won first grade in first six months here. Industrial school work is fair. Is not in night school. Labor is fairly good.

Police record: "Good home. Father says he will not work and they cannot control him. He is a degenerate."

No. 14.—Attended an undergrade school for five years and was expelled at 14, when he went to work as a messenger boy and later worked as an errand boy. No evidence of a worthy ambition appeared in the interview. He knows the multiplication tables and short division, but admits he can't learn long division, though he has tried, both before coming here and since. Besides the tabulated anamnestic information he has been on probation four times and is a second comer here. He broke his probation once.

Features are well balanced and skull is well formed. Palate is high arched and narrow and lobules are attached. Is left handed.

Police record: "Twice arrested for breaking and entering and larceny from the person. Not disposed to work, and not over bright. Fair home. Easily led."

No. 15.—Left school at 14 to become a mill hand. He repeated none of the grades and got to percentage; but cannot tell what 6% of 150 is nor give ½ of 1-20. Asked anent long division he says "No, that's one of the parts of arithmetic I can't do." Subtraction bothers him more than addition (see Table I). In reading he stumbles on words of four syllables. Left weaving to begin work in a paper mill. Began to go wrong by drinking and going with the idle. Is in the Reformatory for the second time for breaking and entering. Is an onanist but denies other sexual transgressions. Has no plans on release but to go to work. Night school work is poor.

Has internal strabismus, left. Small, asymmetrical mouth. Palatal arch is high. Lobules are attached and each helix shows a Darwinian tubercle. Face narrows rapidly toward the chin.

No. 16.—A fisherman who left school, against advice and opportunity, at 13 in the 7th grade. 256 to be divided by 12 he stumbles over but answers correctly. He began to deal in short lobsters which he says "is no crime down along shore." Has had gonorrhea and has drank freely. He seems rather dull in the laboratory, and in the association test his answers trail off frequently in expressions of self-depreciation, *e. g.*, "that's all I know." When the point under consideration was whether the world owed every man a living whether he earned it or not, he insisted on the affirmative and affectlessly cited his own case, and later he showed his satisfaction in getting his living here without working.

Face is asymmetrical. Eyes are not quite mates. Lobules are attached, and palatal arch is high. Expression is sullen; but when interested he has an oft recurring smile which he quickly suppresses, though it is his best expression.

Police say: "Fair home but he abused it, and is a dangerous person to be at large. Previously arrested four times for larceny and drunkenness, disturbing the peace and assault. Once committed for carrying a dangerous weapon. Not disposed to work. Many cases against him were settled out of court."

No. 17.—His father, a negro, is intemperate, and to quote the subject, "aint much good." His mother, white, has been dead two years in which time is his criminal record. Left school at 14 to go to work as he was "tired of school." Has had many jobs, working longest at selling papers. Is committed for breaking and entering. He was not without money at the time—"did it for fun." "Drinks some." Long division is beyond his ability and he has difficulty in subtracting. His labor and night school reports are below the average and industrial school report is only fair. Simple tasks have to be found for him.

Skull is nearly spherical. Lobules are attached.

No. 18.—A teamster before arrival. He gave no evidence of ambition or capacity, and did little but sweep or dust, an occupation with which he seemed satisfied.

Left side of the face is slightly the more full. He has incurred no marks and so has a "perfect" conduct record. His work is well done. He is not in the Reformatory school.

Police record: "Has no home. Has lived a part of the time with an aunt. Arrested for vagrancy." He has been returned here twice for broken parole and to serve out an unfinished sentence.

No. 19. "Sexual pervert."—A negro, who finished 6th grade and attended an evening high school while working at a lunch counter for part of a year. He had nearly completed a correspondence course in stationary steam firing when arrested. He was not quarrelsome and got into "small scraps" (wordy disputes) only when he was "tantalized." The tantalizing is talking to and about him. He threatened one fellow workmen but did not strike him. Volunteers he is "peevish" and "blue" sometimes "because he has no friends."

His offense is assault on women, and it seems he is sexually excited by the sight of a white woman and desires to touch her person. He denies coitus but admits masturbation. His libido culminates if he succeeds in touching the woman's genitals, but fails of gratification if she succeeds in warding him off or escaping. He has repeatedly lifted women's clothes at night when he could catch them, but denies all other forms of assault.

This man has always lived at home, has never run away nor tramped. His face is oval and pronouncedly of African type. The lips are very thick but on the whole, as negroes go, he is not repulsive—would pass casually as of rather superior type. Ear lobules are semi-attached and palatal arch is narrow. He is left handed. Right side of the face is the more full. He has a beard and is not noticeably effeminate. He is not quick of apprehension, viz., in the cancelled numeral test he began crossing off every other numeral. When idle he seemed almost asleep, started up when addressed, yet he sleeps well he says.

Labor record is perfect. Night school work is good. Has lost no marks so, of course, won 1st grade in first six months.

Police record: "Fair home. Fair reputation. Laborer, disposed to work but seems to have a mania for exposing himself to women."

No. 14.—Attended an undergrade school for five years and was expelled at 14, when he went to work as a messenger boy and later worked as an errand boy. No evidence of a worthy ambition appeared in the interview. He knows the multiplication tables and short division, but admits he can't learn long division, though he has tried, both before coming here and since. Besides the tabulated anamnestic information he has been on probation four times and is a second comer here. He broke his probation once.

Features are well balanced and skull is well formed. Palate is high arched and narrow and lobules are attached. Is left handed.

Police record: "Twice arrested for breaking and entering and larceny from the person. Not disposed to work, and not over bright. Fair home. Easily led."

No. 15.—Left school at 14 to become a mill hand. He repeated none of the grades and got to percentage; but cannot tell what 6% of 150 is nor give ½ of 1-20. Asked anent long division he says "No, that's one of the parts of arithmetic I can't do." Subtraction bothers him more than addition (see Table I). In reading he stumbles on words of four syllables. Left weaving to begin work in a paper mill. Began to go wrong by drinking and going with the idle. Is in the Reformatory for the second time for breaking and entering. Is an onanist but denies other sexual transgressions. Has no plans on release but to go to work. Night school work is poor.

Has internal strabismus, left. Small, asymmetrical mouth. Palatal arch is high. Lobules are attached and each helix shows a Darwinian tubercle. Face narrows rapidly toward the chin.

No. 16.—A fisherman who left school, against advice and opportunity, at 13 in the 7th grade. 256 to be divided by 12 he stumbles over but answers correctly. He began to deal in short lobsters which he says "is no crime down along shore." Has had gonorrhea and has drank freely. He seems rather dull in the laboratory, and in the association test his answers trail off frequently in expressions of self-depreciation, *e. g.*, "that's all I know." When the point under consideration was whether the world owed every man a living whether he earned it or not, he insisted on the affirmative and affectlessly cited his own case, and later he showed his satisfaction in getting his living here without working.

Face is asymmetrical. Eyes are not quite mates. Lobules are attached, and palatal arch is high. Expression is sullen; but when interested he has an oft recurring smile which he quickly suppresses, though it is his best expression.

Police say: "Fair home but he abused it, and is a dangerous person to be at large. Previously arrested four times for larceny and drunkenness, disturbing the peace and assault. Once committed for carrying a dangerous weapon. Not disposed to work. Many cases against him were settled out of court."

No. 17.—His father, a negro, is intemperate, and to quote the subject, "aint much good." His mother, white, has been dead two years in which time is his criminal record. Left school at 14 to go to work as he was "tired of school." Has had many jobs, working longest at selling papers. Is committed for breaking and entering. He was not without money at the time—"did it for fun." "Drinks some." Long division is beyond his ability and he has difficulty in subtracting. His labor and night school reports are below the average and industrial school report is only fair. Simple tasks have to be found for him.

Skull is nearly spherical. Lobules are attached.

No. 18.—A teamster before arrival. He gave no evidence of ambition or capacity, and did little but sweep or dust, an occupation with which he seemed satisfied.

Left side of the face is slightly the more full. He has incurred no marks and so has a "perfect" conduct record. His work is well done. He is not in the Reformatory school.

Police record: "Has no home. Has lived a part of the time with an aunt. Arrested for vagrancy." He has been returned here twice for broken parole and to serve out an unfinished sentence.

No. 19. "Sexual pervert."—A negro, who finished 6th grade and attended an evening high school while working at a lunch counter for part of a year. He had nearly completed a correspondence course in stationary steam firing when arrested. He was not quarrelsome and got into "small scraps" (wordy disputes) only when he was "tantalized." The tantalizing is talking to and about him. He threatened one fellow workmen but did not strike him. Volunteers he is "peevish" and "blue" sometimes "because he has no friends."

His offense is assault on women, and it seems he is sexually excited by the sight of a white woman and desires to touch her person. He denies coitus but admits masturbation. His libido culminates if he succeeds in touching the woman's genitals, but fails of gratification if she succeeds in warding him off or escaping. He has repeatedly lifted women's clothes at night when he could catch them, but denies all other forms of assault.

This man has always lived at home, has never run away nor tramped. His face is oval and pronouncedly of African type. The lips are very thick but on the whole, as negroes go, he is not repulsive—would pass casually as of rather superior type. Ear lobules are semi-attached and palatal arch is narrow. He is left handed. Right side of the face is the more full. He has a beard and is not noticeably effeminate. He is not quick of apprehension, viz., in the cancelled numeral test he began crossing off every other numeral. When idle he seemed almost asleep, started up when addressed, yet he sleeps well he says.

Labor record is perfect. Night school work is good. Has lost no marks so, of course, won 1st grade in first six months.

Police record: "Fair home. Fair reputation. Laborer, disposed to work but seems to have a mania for exposing himself to women."

No. 20. "Epileptic."—Mother has been insane (corroborated by his brother also a prisoner here). The subject has typical attacks of epilepsy, in form masked or petit mal. Has never done any work—says he cannot. Attended schools till in his "teens," but cannot handle long division. Has exaggerated fears of tuberculosis and indigestion. Face shows little change of expression. Mouth and nose have an immature and insignificant look. Chin is prominent by contrast. Teeth are irregular. Eyes are asymmetrical and not lively in expression. "He has been arrested for robbery and has set fire to a house he broke into."

No. 21.—Reached 5th grade in Boston schools, none repeated, before he left, at 14, to help in the family support. He has played truant, roughly, half the time. He can do work in long division and knows that ⅛ is greater than 1/16 but ½ of 1/10 is too much for him. His longest job was 1½ years as errand boy. Only in the last year has he begun to go crooked. A couple of fellows asking him to go along and make some money was the beginning. He is here for trying to pick a man's pocket—his first attempt. He is comparatively unsophisticated.

When released he expects to go to work helping his stepfather on his team. Lost 25 marks, won 1st grade in seven months. Labor report is "perfect." Industrial and night school work is "good." The right eye opens the wider. Teeth are very irregular, the left upper incisors being peg shaped and placed in median line. Canines are too large and one is out of line. Face shows little play of expression and lacks distinctiveness.

Police record: "Committed for larceny from the person. Poor reputation. Not disposed to work."

No. 22.—A very quiet, self-abasive mulatto, much undersized. He can handle long division well, reads fairly well, thinks ⅛ is greater than ¼, and can't tell how much ⅛ of a dollar is. Has never learned a trade; but thinks he can paint and hang paper. Has no plan but to go back to Virginia. Conduct is perfect, he having lost no marks and having gained 1st grade in the shortest possible time—six months. Was never locked up before, but has been a tramp for some months.

Face is asymmetrical. The left eye is lower. Ear lobes are semi-attached. Features are pronouncedly of African type. Forehead is low and retreating. No police record.

No. 23.—Father is intemperate. Conduct report is "perfect." Labor report is also "perfect." Industrial and night school reports are "fair." Skull is narrow and not roomy. Forehead is low and not wide. Ears are very outstanding. Expression is rather inscrutable, carrying nothing of distinction.

Police record: "Poor home. Bad reputation. Complained of many times, but never arrested. He would not work, and abused his mother and sister."

No. 24.—Father is intemperate. Finished 5th grade at 14 and left school with advice of parents. He can handle long division but not fractions. He stayed 3 years in one place. Then as a leather cutter he worked a year

in one place, getting $10.80 per week. After this job he was idle for about two years, and was helped by his people at home. He made no money in crooked ways in this interval, but began to associate with the idle, and to drink. Is here for breaking and entering. Has had no venereal disease though he has spent a little time and money on fast women. No other in his family has a criminal record.

Left side of the face is decidedly the more full, and left eye is the more prominent. Is a mouth breather. Palatal arch is very narrow and rather high. Forehead is prominent and broad.

Has a "perfect" record and so won 1st grade in shortest possible time. Night and industrial school work are fairly well done and labor record is "perfect."

Police record: "Committed for breaking and entering. Has previously been in the House of Correction for drunkenness. Fair home. Bad reputation. Previously arrested four times for breaking and entering, malicious mischief, larceny and violation of the railroad laws. Not disposed to work."

No. 25.—At 12 he was taken from school, in the 5th grade, and set at work in a cotton mill. He repeated 4th grade work but handles long division fairly well. Night and industrial school work is fair. He was reduced to 3d grade here two months ago having lost 440 marks in a year.

Right side of the face is more full. Palate is high arched and lobules are attached. Incisors, which are large, are in the same vertical plane but do not meet by 3 mm.

"Fair home but does not appreciate it. Easily led, and has a great desire for money not caring how he gets it. Arrested once for larceny. Disposed to work."

No. 26.—Father is intemperate. Is here as a stubborn child. Has been in a parental school. As the tabulated scores show he could not count backward by 3's. His reading is very poor.

Forehead is very low and skull lacks occipital fullness. Has a pleasant childish smile and face of the peasant type. In taking the achievement capacity test he was over stimulated. The examiner was called to the operating room in an emergency and on his return found the overzealous officer, who had been continuing the test, urging the subject not to give up. Only simple occupations are given him.

No. 27.—Expelled from school at 14 because of bad conduct, truancy and defiance of teachers, he was glad to drop out but his parents were disappointed. He had stolen from home. After seven months honest work he began stealing from his employer and was sent to the Reformatory. In two months after his release he was returned for breaking and entering. His evident pride in this led to questions and his free admission that he would be ashamed to come back on a charge of no more consequence than larceny. His father, now dead, used to "lick him," and "shut him up" for theft and truancy, treatment he reluctantly admits was not too severe. His mother is in a hospital he announced without affect.

Admits drinking but denies sexual excesses except onanism. He can handle easy examples in percentage. Conduct record is much better than under his former sentence; but he is often under discipline.

Face is very long. Forehead narrow. Head is habitually carried tilted forward. Ear cartilages are well formed, but the helices for 1½ inches are caught under a fold of reflected skin and cannot be released though somewhat movable.

No. 28.—His mother's death when he was but 13 prevented his finishing grammar school. Has had two years in a business college and has learned the printer's trade, having been a foreman. Arrested first for obstructing the sidewalk, he was questioned by some plain clothes men who were after members of the "Field's Corner gang." Denies he knows any members of that gang; but was sent to the Island where he learned masturbation. Denies other sexual sins. Has not worked in many places, never discharged. Second arrest was for larceny of money left within his reach at a time when he was almost penniless and no witnesses were present. He has never tramped and never ran away. He plans to live with his father who has remarried. He volunteers that his chances of getting into further legal trouble are very small. Asked how much weight he had given in his thinking to the fact that the man he robbed had earned the money and had sole right to it, he replied that he "had since thought of the man as he might think of himself if their places had been changed."

Has normal palate but stammers. Chin is asymmetrical and Darwinian tubercles are very prominent and well developed. Has regular, well balanced features and a frank, fearless countenance suggesting a certain aggressiveness. His manner and face are attractive.

Has lost no marks—perfect record. Night school work is "good and labor record is also good."

Police record: "He has a father and a step-mother but does not live with them. He is a printer and was working."

No. 29.—Undersized and pinched looking. School to the 7th grade. Handles long division rapidly and accurately. Knows a little about percentage. Left school at 16 because he was arrested for larceny from the person and sent here. He was on probation at the time and had stolen, at times, for the preceding two or three years. Has lied to his parents (no affect). Is the oldest of five and "the worst one." "If there is anyone punished, I get it," but he admits his punishment was not effective. He has no plans for the future nor any definite ambition. "Sometimes I think what I'd like to be; but in half an hour I think of something else—pretty hard to tell when you're like that." He has never tramped nor run away.

Lost 110 marks in four months. Labor quality is poor which would mean intolerable by ordinary standards. Night school work is very poor. Forehead is rather narrow and is not high. Mouth is markedly asymmetrical and rather prominent, while at the same time the face narrows rapidly

and shows considerable asymmetry. There is considerable parietal fullness, giving his head and face a peculiar shape.

Police record: "Seems to be a natural born thief. His parents cannot control him. Previously arrested for larceny and setting fires. Not disposed to work. Returned here twice because of arrests before expiration of parole."

No. 30.—Father drinks. Left school at 14 in the 5th grade to his regret, because his help was needed at home. Asked to divide 256 by 12 he multiplies them and on further trial fails to divide. Has kept one job a year. Was never discharged. Has earned $14.50 a week. Has done nothing crooked. Claims to be charged with indecent assault of which he is innocent. Claims witnesses lied and his alibi, through his mother, was not believed.

Denies sexual transgressions except onanism. Has loafed a year or so in the last three. Always lived at home. Never stole more than a few apples. Denies tramping.

Has a rather long lower jaw and palatal arch is high and narrow. Ear lobules are attached. Facial expression is mobile and responsive, and his glance meets the questioner unflinchingly. He shows interest and is alert.

No. 31.—Left school at 12 to go to work. He was to have repeated the 7th grade and so left against advice and protest of his father, and an offer from the latter to send him to a private school. Arithmetic bothered him most. Which is greater 1/16 or 1/24? is correctly given. ½ of 1/24 he fails on. 256 to be divided by 12? 21 he says. Prompted he finished correctly.

After school he worked five years where he had two raises to $2.75 per day when he left. For two years he worked steadily for one firm at $4.25 per day. During this time he was arrested three times for drunkenness. Since then he has tramped some, drank much and has had 15 or 20 different jobs. He admits he has been going to the bad for two years. He goes home occasionally. He admits he is the black sheep of the family.

In the laboratory he suddenly stepped off the achievement capacity test apparatus at the 4½ minute mark, and when questioned talked of an old ankle weakness but with little effect. As he left the building there was no sign of lameness in his gait.

Right side of the face is slightly the more full and left eye is decidedly the lower. Features are well balanced. Has thin lips and a rather defiant, sinister expression. Eyes are habitually averted.

Labor and conduct reports are "perfect."

Police record: "Good home. Very bad reputation. Previously arrested 11 times and committed 6 times. Never would work and cannot be trusted. Has been an inmate of the hospital at Foxboro and of the State Farm.

No. 32. "Insane."—"Father is intemperate." Cannot tell how long he has been here nor the day of the month. Given the tests twice with an interval of 8 months, the second set of scores is the less favorable. (See Table VII.) Has been a tramp. In one phase of his insanity he is very

dull and apathetic while in the other he is mischievous and silly, and a most shameless onanist.

"He is considered simple. Reputation poor. Arrested once for vagrancy."

No. 33.—Graduated from the grammar school and declined the offer of a chance to go to high school, disregarding the advice to do so. He began work in a shoe shop where he stayed for a year, and when laid off for want of work, he got another job as time-keeper. He was discharged as he did not keep up his work, being "in with a bad bunch." He was beginning to steal about this time. He has loafed a year and has tramped some. He admits he is the black sheep of the family. Has wasted some time and money on fast women, but never had any venereal disease.

Face is slightly asymmetrical, and mouth is markedly so in smiling. Habitual expression is serious but his face lights up much and reacts expressively to stimuli. He has little use for study or any other means of self-help, however. He clearly felt his position of black sheep in his family.

No. 34.—Left school at 14, in 5th grade, to go to work. His parents deprecated the necessity but he was indifferent. He is studying long division in the Reformatory schools and readily divides 256 by 12.

He was 2 years in his first job and worked a notice to take a better one. Has made $9.00 per week for the last 2 years during the season as a laborer on the state roads. Was once discharged from a shoe shop for fooling. Began to go crooked about 3 years ago by breaking and entering a blacksmith shop. Has continued since on occasions but never made anything. Is going home when released and perhaps will enlist in the army. Has no idea of seeking to improve himself by study and training. Denies all sexual transgressions and practices. Has been returned here to serve out a six months' sentence to a House of Correction and was once returned to finish out a sentence here, as he had broken his parole.

Skull is well shaped. Under jaw is a little too short. Face is unusually asymmetrical but other stigmata are absent. He has a blithe, frank and respectful demeanor, and does not hesitate evidently to incriminate himself. There is little of seriousness and dignity about him.

Has a "perfect" conduct record and labor report. Night school work is "poor."

Police report: "Home is poor. Reputation is poor. Previously arrested 3 times. Not disposed to work. He is where he belongs."

No. 35.—He has learned the cobbler's trade and while doing so he was quiet and industrious. He avoided the affairs of other people, and when trusted by his officer in minor matters never betrayed the trust.

Skull is of a peculiar shape having a prominence above the occipital region. Angles of the jaw are prominent. Habitual expression indicates seriousness almost to sullenness. Previously committed to the Lyman school and House of Correction.

Lost 25 marks but won 1st grade in first 6 months. His work is well done. Night school report is fair.

Police record: "Good home. Bad reputation. Not a steady worker and pretty troublesome."

No. 36.—A farm laborer with no plan for the future but to get work on release. He left school at 13 while in the 4th grade against strong protest of parents. Has had many jobs and has been a vagrant for a short time begging his way. He committeed rape on a fellow prisoner while in another reformatory, in company with a third, but denies all other sexual lapses. He admits theft, and his sexual offense without affect and is affectless in talking of home and parents.

He learned long division in a month at the night school, never having tried before, and works at it confidently and accurately. Conduct record is poor—3d grade. Skull is narrow and rather small.

No. 37.—Father died 11 years ago. Can handle easy examples in fractions. He earned $10.50 per week in a bakery where he stayed for two and one-third years. He has worked three years as an electrician's helper.

Industrial school record is good. Face is slightly asymmetrical. Expression is sanguine and cheerful, and his manner is quiet and respectful. There is little of the aggressive and decided, however. Has lost 45 marks.

Police record: "Fair home, poor reputation. Previously arrested twice for larceny. Disposed to work."

No. 38.—Left school at 14, in the 7th grade, to help in the support of his widowed mother. He was satisfied to leave as he did not care to go to high school. Repeated none of the grades. 1/6 is greater than 1/16, he says. "I wasn't very smart in school anyway." ½ of ¾ he fails on. 256 to be divided by 12 he does correctly, but he cannot handle the fraction.

He worked a year in a machine shop, and left for a better place on two days' notice. He stayed 8 months in the next place and came down with typhoid fever. A short time after recovery he was arrested for assault and battery and sent to a reform school. He was out about nine months when he was arrested for the offence for which he is serving his present sentence, receiving stolen goods. He has not drank much he says. Has transgressed with fast women and is an onanist. On going out he plans to "follow up the painter's trade."

Is noticeably slow and stolid, and a poor observer. Face is somewhat asymmetrical and lacks alertness, responsiveness and strength.

No. 39.—Left school at the 7th grade taking the 5th over. Has not thought of trying to go to school more since leaving the Lyman school. Has had six jobs in the last three years, mostly at baking and teaming, and has loafed about four months. Left three jobs without notice, and was discharged for carelessness with fire and the damage which followed. Thinks of finding farm work on his release but has no job in view, and will not go home; though he has a good one.

Mouth is asymmetrical and left eye is the smaller. Is easy going and pleasure loving—easily led he admits.

Never won 1st grade. Lost 210 marks. Labor report is "good." Industrial report is "very good." Night school work is "fair."

Police record: "Fair home. Very bad reputation. Previously arrested five times, twice being for desertion from the navy. Works at times. Is absolutely bad."

No. 40.—Father is intemperate. He knew something of bookbinding and typesetting on arrival, and while here worked at the compositor's trade. He is "a little off" it seems and requires careful, tactful handling, or he will not try.

Skull has a fairly good shape, shows some occipital deficiency. Face is markedly asymmetrical—nose and chin being twisted to the right. Has been committed to a parental school and the Massachusetts School for the Feeble-minded, also the Suffolk school.

Conduct report shows five marks which were restored. Labor is only fair. Industrial school report is excellent.

Police record: "Fair home. Committed twice for larceny. Disposed to work."

No. 41.—Here on his second sentence for the same offence, *i. e.*, larceny from his home. The incentive was the same also, *i. e.*, to secure funds for a fast woman.

He left school at 14 at the time of the death of his father. He did not regret the necessity then but did afterward. He thought he could handle long division but he cannot. He kept his first job two years, and began to go crooked as soon as he left school. This was "with the crowd evenings." He has used alcoholics freely. He got $6.00 per week at first and later $8.00, and left to get somewhat better pay as "call boy" on the stage. He admits he might have been better off had he tried harder and longer to learn electrical engineering, and that at the time he had not thought of so doing.

He has had no marks and so has a perfect conduct record. His record at labor is "perfect." In night school it is "fair," which would be very poor by ordinary standards.

Police record: "Second comer here. Parential school, Massachusetts Reformatory for larceny. Reputation very bad. Not disposed to work. Nothing to be said in his favor."

No. 42.—Committed to the Lyman school for truancy and running away twice, and has been in a parental school. Has a "perfect record for conduct and labor." In the industrial and night school he did well, being promoted once in the latter.

His work is scrubbing floors and stairs as he has no trade. He is one to sit and wait to be directed, and is not quick to see what is next to be done. He seemed satisfied to drift on and to lack ambition and enterprise. Face is of Jewish type and shows nothing distinctive.

Police record: "His record is extremely bad."

No. 43.—Father is intemperate. Left school when half through the 9th grade because he wanted to go to work. This was against the advice of his father but not against his consent. His first work was in a machine

shop, being laid off after 3½ months for lack of stock. Instead of waiting to be sent for at the machine shop he began in a shoe shop where he staid 8½ months. He left because abused verbally by his boss, who afterward sent for him unavailingly. From this time he was idle six or seven months till arrested for stubbornness. Put on probation he was turned over by his probation officer in five months as idle and intoxicated.

Left side of the face is more full and palatal arch is rather high. Has an oval face with well balanced features. Has a labile, sanguine, merry expression and ready smile. Blushes easily. Is leisure loving and impulsive rather than determined and aggressive evidently.

Has a "perfect" conduct record. Industrial school work is "fair and his shop work is good."

No. 44.—He was slow but steady at his work of running a machine in the shoe shop. He drifted on without show of ambition making neither friends nor enemies. Speaks indistinctly though there is no speech defect. He picked up a fallen object anticipating my want, readily grasped directions. The whole iris of each eye shows giving him rather a staring expression. His appearance is not prepossessing. Complexion is pasty.

Lost 20 marks but won 1st grade in first six months. Industrial school work is fair.

Police record: "Good home. Poor reputation. Arrested once for breaking and entering. Shoemaker, disposed to work."

No. 45.—Father is intemperate. Has never lived at home but 18 months all told, six months the longest time; though he is the oldest of three. His first ten years were spent in a "home" for orphans though his parents were living together and do so still. Twice sent to the truant school he twice escaped. At 14 he quit school against advice to begin work, and ran a sewing machine for six months in a print works when he was discharged for breaking the machinery so often. This was usually done "fooling." He was four times arrested for larceny, and was sent here at 15 therefor. He has run away from home, and when his family moved a year or so ago he would not go with them, and in a few weeks was sent here for the second time for larceny. He has slept out often, alone and with others, and has jumped freights, usually with others. He has made a little money at stealing, usually as a lone worker. Left his last job to get out of the city as he feared arrest. He exhibits no discernible "affect" as these admissions are easily drawn from him. Admits he knew it was wrong to steal. He has sought medical relief for onanism with tears, volunteering that he cannot control the impulse which he has regularly and frequently yielded to since the age of 17. He has grown 1⅝ inches in the last year, and is now very tall and thin. Has articular rheumatism much of the year. Is beardless and a mouth breather; but has no adenoids. Teeth are irregular and the upper set are prominent and about 3/16 of an inch beyond the nether incisors. Palate is very high arched and narrow. Face is asymmetrical, long and haggard, the chin being to the right of the median line. Nose is illy developed and weak. Ears are very outstanding.

He is an omnivorous reader and reads fluently. He handles long division fairly well and knows a little about fractions. Fears he is losing his memory.

Police record: "Served a term in the Middlesex County Training School. Committed for truancy."

No. 46.—Here for drunkenness. Has a massive and well developed frame and musculature. Left school at 14 while at work on fractions. Correctly answers the following: 256 to be divided by 12? Is ¼ greater or less than 1/14? ½ of ¼?

Never learned a trade. Has been a lumber jack and has worked in a livery stable. Says he left the woods, brick-laying, etc., because "he did not like it." Read a newspaper stumblingly. In manner and matter his answers are brief and uninforming. He shows the least interest in the tests of any subject; yet is not unwilling and does not hesitate to admit shortcomings when they are asked for. *Vide* anamnesis, also ethical discrimination test scores and others.

Police record: "No home. Good reputation when sober. Bad man when drunk. Previously arrested six times and twice committed to the House of Correction for drunkenness."

No. 47.—Left school at 15 while in the 7th grade. Repeated 3d grade work. He cannot mentally divide 256 by 12. He can subtract well. "I was not very good at addition in my head." He left school against advice, and declining the offer of further private school tuition, to go to work. Seven months is the longest job—in a shoe shop. Discharged twice, once for maliciously changing tags on goods as he "lost his temper with the boss," and once for no fault of his. Never ran away. Has transgressed sexually with girls and is an onanist—learned it in jail. He expects to go back home and to work on leaving here; but has no more definite plan. He falls in with the suggestion that he go to night school or take up a correspondence course. He dates his wrongdoing back to the age of 15 when he disobeyed his mother to go with an older boy whose example was bad.

Face is asymmetrical. Has lost 140 marks and is still in 2d grade of course. Industrial and night school work are "good" and labor report is "perfect."

Police record: "Fair home. Poor reputation. Previously arrested twice for breaking and entering and assault. Shoemaker, disposed to work."

No. 48.—Reached the 7th grade at school and can handle long division readily. Reads fluently. At 14 he left school on his wish to do so, and his parents assent. For the last nine years he has been a common sailor and has never been home. Has never kept any job long, 14 months for the first one being the longest. He has been a free user of alcohol and has wasted money on fast women. Denies history of venereal disease. He is here as a vagrant but maintains he has never tramped. Is here for

the second time; his first offence being for breaking and entering six years ago. His plan is to enter the navy. He volunteers nothing, but answers promptly and with no evident concealment.

He lost 10 marks and won 1st grade in seven months. As a laborer in the shoe shop his record is perfect. Face is oval and features are well balanced. Palate is high arched and narrow.

Police record: "Fair home. Thief by reputation. Not disposed to work. Committed to the Reformatory twice for larceny and idle and disorderly conduct; and to the State Farm for idle and disorderly conduct. Broke parole."

No. 49. "Morally defective."—His father is a successful man. His mother is capable of caring for her house. His maternal grandparents seem to him to be ordinarily endowed and successful; but the feeble-mindedness of the family is supposed to be derived from the maternal side. A maternal aunt and sister of the subject are in an insane hospital. The aunt is the mother of five children who seem to be normal. No consanguineous marriages are known to the subject; but there is reason to believe his parents are related. A brother and sister died at the Massachusetts School for the Feeble-minded. intelligibly; but he does chores about his father's horse stable and helps his mother do the washing. He is regarded by the subject as "kinder simple." A sister died at 15 before the subject knew her. When asked concerning her mental capacity the subject replied: "She and me was supposed to be all right." So, four of the children were feeble-minded or insane. He has cousins but all are normal apparently.

This subject got through 7th grade in school he thinks, repeating the 3d grade; and is in the Reformatory school; but he cannot handle fractions saying, "I did not give much heed to those," nor long division. He volunteers that he "can add" and again is "not very good in arithmetic," and again that he "had not much notion for school." His attempt at the calculation test is: 31, 19, 16, 14, 12, 10, 7, 5, 3, 1, in 75 seconds.

He left school at his father's behest and was glad to do so. He has stolen small items from home, and is here for stealing while drunk. His other troubles with the police have been putting blank cartridges on the rails, playing ball in the street and fighting. His father sometimes punished him—not ofen—but generally for lying. "He gave it to me good when he did." He has no skill in any special line—is rather proud to say he can harness a double team. No ambition but to be with horses could be elicited. Is an onanist, but is innocent of other sexual transgressions.

His mental reactions are slow and perceptions are not keen. He interrupts occasionally to change the subject to some personal matter. He could not tell the day of the month. In the laboratory, while engaged with tests, he suddenly asked: "Does this tell whether you are foolish?" This with a fleeting smile. He seemed rather proud of his penetration. The tapping test stylus gives a minute contact spark which prompted him to remark: "There is little pins in this plate." His thinking is markedly ingenuous and puerile and self-criticism seems to be wanting. His gait is loose and slouching and takes him in anything but a straight line along

the sidewalk or to his destination. Shoulders are sloping and abdomen is full and enteroptotic in appearance. He is a very rapid and almost voracious eater.

He has lost 155 marks, but so distributed that he won 1st grade in nine months. Night and industrial school reports are that his work is fair.

Palatal arch is high and narrow. He is a mouth breather; but has no adenoids of consequence. One Darwinian tubercle shows plainly. The left side of the face is the more full, slightly. The eyes are very large and lips very thick and red. His expression is puerile. There is nothing of the alert and aggressive about him. Skull lacks occipital fullness and forehead slopes back to parietal region quickly and lacks width.

Police record: "Here for larceny. Good home. Some of his brothers are feeble-minded and one is an idiot. Bad reputation and needs restraint, having got beyond the control of his father. Previously arrested three times for assault and battery, disturbing the peace, and placing explosives on the track."

No. 50.—Reached 6th grade in Boston schools before he left at 14, against advice and with nothing in view. "I just wanted to get away from school, that's all." He can do simple problems in percentage and has no school record here. He alleges he got out of school work here as he did not like it and adds: "A fellow might get into trouble there." (School.) Has never worked steadily at anything long. Has not been home to stay for three years, but has lived near home and has never tramped. Is a pickpocket and is here for the second time for that offense. He at first went along with the others but has "framed up" many "jobs" himself. Is a masturbator; but denies venereal disease. Has drank hard liquors to excess.

Ear lobules are attached; palatal arch is high and narrow. Face has smoothed-out appearance and lacks expressiveness and dignity. Left side of the face is the fuller slightly, and left eye is the lower.

Police record: Is a second comer here. "Poor home, bad reputation. Previously arrested three times for receiving stolen goods, larceny and robbery. Not disposed to work. Sentenced to House of Correction for larceny from the person. Has twice broken parole."

No. 51.—Claims to have nearly finished the 9th grade in school, but long division bothers him much and fractions are quite beyond his capacity. He reads fairly well. Left school at 15 to go to work of his choice—a step he now regrets. Industrial school work is fair. Lost 205 marks in a year; but is now in the 1st grade having won his way up from the 3d grade, incurred three months after his arrival. He stowed away here once hoping to escape, but was found in an hour.

Forehead is narrow and not high. Face is rather long but features are well balanced. The left eye is less prominent. Ear lobules are semi-attached and the left ear shows a small Darwinian tubercle. Has a brother who is also a prisoner here.

Police record: "Family has a bad reputation except mother."

No. 52.—Left school at 14, in 9th grade, against advice and opportunity to go to work. At school he repeated none of the grades. He thinks he stood well. ½ of ¾ he fails on. 1/6 is greater than 1/16 he says. 256 to be divided by 12 he does quickly and correctly. He went to work in a mill staying nine months, leaving for a better job and working a notice. Next he loafed most of the time for 3 years till $1000 left to him was nearly exhausted.

About four years ago he was arrested for breaking and entering and was sent here. On release he broke parole by drinking and is now finishing his sentence. Asked if he thinks his Reformatory experience will do him any good he replies he "supposes so," and goes on about his not "getting a very square show." When the question is asked whether he thinks the Reformatory experience will be a benefit or injury to him he replies "it is supposed to help me." He denies all sexual transgressions and indulgences. He plans to go to work but has nothing definite to try to accomplish. He volunteers "I had a chance to go to college if I'd gone straight."

A very sober looking, serious man with a tapering face and weak chin. His glance avoids the questioner's and there is a consistent lack of responsiveness to all hints regarding self-help, evening study, a home of his own, etc. He assents to the proposition that drinking has been one cause of his failure.

No. 53.—Father is intemperate. (See truancies in tabulated anamnesis.) He broke his probation and was sent to a truant school. Later served a term in a reform school for young offenders, and there began on 9th grade work before he was released at 16. His first job lasted three months when he was discharged for "fooling so much and not attending to work." After that he had many chances; but never kept any other place so long. His father never tried to look after him but "used to throw him out of the house regular whether he worked or not." He learned the solitary sexual vice at the truant school and argues that it is natural.

No definite plan is elicited for the future. He has no trade except some knowledge of weaving, and the value of that he clearly underestimates. He is not self-conscious or diffident; but interrupts to paraphase or tell a story and neglects to answer questions at times. In fact he would take over the conduct of the examination if allowed. Prison sophistries and unworthy pretexts and excuses are urged for failures and wrong-doing; not with the ring of conviction, but to see if they will be accepted. He blames his pal who "framed up the job," *i. e.*, his snatching a hand-bag from a girl, for having given him the dangerous work, while he, the pal, pretended to try to assist the victim.

He is very pleasant and smiling and has an attractive, guileless face with regular features, but which lack strength and dignity. Ears show Darwinian tubercles (small), and attached lobules. The left side of the face is slightly the more full and the jaw is prognathous.

Lost 115 marks. Won 1st grade in seven months. Industrial school work is good. His labor here is poor.

No. 54.—Father died nine years ago. Left school, at 14 in the 5th grade, as he was arrested and sent to the Lyman school where he stayed 18 months. About 11 months after release he was sent back, he claims not to know why; but it may have been because he was with shady characters too much. Breaking and entering is charged against him twice. 256 to be divided by 12 he gives up at once. 256 to be divided by 9 he also gives up. 256 to be divided by 5 he gives correctly. He had about three years' liberty before coming here. He lived at home and worked some in a shoe factory making $9 to $12 a week, of which he turned $4 into the common fund. He loafed much. Was once discharged. Never gave a notice, and does not see the importance of doing so. He has tramped and jumped freights, being gone two weeks once. Admits occasional sexual transgressions and onanism.

Is a mouth breather and has a high arched, narrow palate. Is not quick of comprehension and phrases have to be repeated. Skull has a good typical shape. Is very ready with excuses and is too easily satisfied therewith. Has lost no marks and, of course, has a perfect record. Night school work is "excellent," and labor is "perfect."

Police record: "Good home. Very bad reputation. Committed once to Lyman school. Shoemaker, not disposed to work."

No. 55.—A subject who finished 6th grade school work at 17 and left school to help his brother in his store; a move deprecated by his parents and himself, but necessary to the support of the family. Is quick and accurate at figures. He has worked in shoe factories for a year and two years in a place, never discharged, always left for a better place except once when he was assistant foreman, all hands struck and none were reinstated. Has never been idle, for when out of work for a month or two, as he was on two occasions, he worked at home or helped his brother. During vacations, while at school, he was employed and trusted in a drug store.

His first dishonesty was the larcency of money from his employer, and for this he was arrested. At the time he needed money as he was "going with" a girl, who was respectable, he thinks. He is innocent of all sexual and alcoholic excesses. Never stayed away from home, never pilfered from home. He is very solicitous about his health, fearing he has tuberculosis.

In address and manner he is ready, but mild and respectful. The angles of the lower jaw are prominent, the left slightly the more so. He has lost 35 marks and has not yet been here six months so has not first grade of course. Industrial school work is excellent, night school work is good.

Police record: "Good home, reputation growing bad. Arrested once for passing a worthless check."

No. 56. "Morally defective."—Rheumatism and truancy broke up his school attendance at 14. He had been on probation and on breaking it he was sent to a truant school. Three terms at evening school took him to decimal fractions but not far into that subject it seems. He is by no means sure of himself in fractions and on trying long division cannot finish a not very difficult example. He was never discharged. Never

kept any job over three months except one which lasted eight. He was here first at 18, convicted of forgery, five counts and one of uttering. He explains, "You know, utterin' is, you know, attemptin'; but didn't get de money."

On release from here he did "what you might call sportin' around; but I didn't get into any trouble or anything." His next downfall was when, after several short jobs, teaming, etc., he became the "Secretary of a Variety Company." He soon began taking a "rakeoff" when he placed contracts and then came the forging of checks. In eight months he was arrested and sent here again. "It takes quite a lot of money to go with them fast people, show girls, you know, wine suppers, etc. Of course you don't want another fellow to show you up cheap." He has been under treatment for venereal disease.

He has a puerile, inconsiderate way of changing the subject and introducing some selfish interest. Palate is low and broad. Ear lobules are semi-attached. Forehead is low and retreating. Occipital region lacks fullness. Face is rather long, and parietal diameter of skull is long.

Police record: Is a second comer here. "Four counts of forging and uttering with attempt to defraud. He has not lived at home for some time; bad reputation. Arrested twice for larceny. Not disposed to work. Is shiftless and cunning, absolutely refusing all offers of honest work."

No. 57.—Mouth is thin lipped and determined but asymmetrical. Nose is the prominent feature.

Labor record is "perfect." Industrial school work is good, and conduct report is "perfect." His work has been in the cloth mill and on the walks and grounds. He is not lazy but sets a good example in industry and has never betrayed the trust involved in his working outside the walls.

Police record: "Bad reputation. Abused his mother and refused to work. Previously arrested for rape, stealing a ride and robbery, and has been twice committed. Works at times."

No. 58.—Had worked in a factory on arrival. Here he has learned the cobbler's trade in an unusually short time. Is very quiet and industrious. Alcoholic indulgence was his undoing.

Forehead is low. Right eye is on a lower level. Lobules are semi-attached and mouth is markedly asymmetrical.

Conduct report is "perfect," also labor report. Industrial school work is "very good."

Police record: "Good home. Bad reputation. Previously arrested five times and committed once to the House of Correction. Laborer, not disposed to work. He is worthless and inclined to crime when drinking."

No. 59. "Sexually perverted and morally defective."—Went to school to sixth grade, repeating the work of that grade and that of one other. He was sent to a school in which sloyd, printing and modeling were taught. He attended an evening class in drawing three terms to try to become an architect; but his father took him out and started him in as a clerk in a grocery. He cannot be gotten to give a reason for this change nor will he

meet the issue of the question. "Do you think your work in the drawing class was about as good as that of the best scholars or not? This was many times repeated but he smilingly avoided the issue generally by changing the subject.

In the laboratory his manner and appearance at once attracted attention. He is very voluble, talking rapidly in a dry, high pitched voice and repeating with surprising frequency and inappropriateness. He frequently interrupts and often paraphrases or finishes sentences for the examiner when he thinks he catches the drift. He is so frank in manner and egotistical as to be absolutely unabashed. Lack of judgment and self-criticism show in his lability, childish eagerness, lack of poise and in his empty irrelevant remarks and purposeless motions and gestures.

His offence is indecent assault the same as that of 12 years ago. He spent his spare time for months and years it seems "playing with" some little girls, five of them. When they were infants he put them to bed and continued to help the mother with them as they grew up to be ten years old or thereabout. "I used to toss them up and undress them and everything. I wouldn't hurt them for the world." Did you sometimes put your hands on their privates? was asked him many times but the best answer that could be gotten was "I don't know." He would quibble or change the subject always to some of his stock phrases like the above or "I had known her ten years," or "I never said a word to any other girl," or "If the judge had been like the jury I wouldn't have been convicted," or "That happened a year before," or "The girls quarrelled with a neighbor and the neighbor told on me or I wouldn't be here," or "Some people are prejudiced about a thing like that."

An officer having charge of this subject reports that he requires constant watching or he would wander off neglecting his work, and always in the most artless, heedless, naïve manner. He was always "hanging around." Fellow prisoners assert that the illicit relations of this subject and No. 5, a demented defective who was transferred to the State Farm at Bridgewater, as insane and who was the most shameless masturbator known here, were of the most depraved character.

Left eye is nearer the median line, and right side of the face is slightly the more full. Lobules are semi-attached. Skull is of peculiar shape. Forehead is narrow and not high but along sagittal region is a ridge giving the top of the forehead a peaked appearance. Occipital region is rather deficient. The mouth is large. His face is wholly lacking in dignity and "presence." He is left-handed. His smile is not a sympathetic or mirthful one. He has no police record beyond the facts given. He was committed here 12 years ago for indecent assault and in a month sent to the State Farm for the Insane, where he remained 11 months, after which he was returned and released on permit in three months. He has not been in the reformatory schools; but can make change and handle simple fractions.

No. 60.—Left school at 15 in the high school grade of a training school. On release he could have gone on in school, sent by his father, but after a little experience at a Y. M. C. A. evening school he gave it up. He

got to going "with the boys" and following moving picture shows, so gave up school. He is by no means sure he made a mistake in neglecting school. His mother wanted him to go. He has been whipped at home by his father for staying out late and for lying. He has not stolen from home but has from other places. Has jumped freights and tramped some.

Forehead is low. Lobules are attached. Naso-pharynx is small. Tonsils and adenoids have been extirpated. Is slow of comprehension, and expression lacks alertness and responsiveness.

Has a "perfect" conduct record and industrial school work and shop work are well done.

No. 61.—Father was intemperate, but not in 15 months now. At Suffolk school for boys he finished ninth grade work, being there seven months for assault and battery. His mother disciplined him most but when she tried to be stern with him he used to go away for a couple of days or so. Was gone five weeks once. Discharged once from a cooperage for smoking in the basement. He stole from a cigar delivery wagon and was sent here. This was done with a boy he had known but three days, and who got away. He would go "higher" in school if he had the chance he says. Has no plans for after release except to go home. Admits he is the black sheep of the family. He has been intimate with fast women but has had no disease. Is an onanist.

Left side of the face is decidedly the more full and left eye is the more prominent. Face narrows rapidly from above downward, and skull lacks occipital fullness. Has one Darwinian tubercle.

Has lost 75 marks but won first grade in seven months. Has not been in evening school here; but industrial school record is "excellent." His work is ordinarily well done.

Police record: "Committed for larceny of a bicycle. Fair home, nine children in the family. Bad reputation. Committed once to the Suffolk school for assault and battery."

No. 62.—Left school at 14 in the fifth grade. Was treated as were his brothers and sisters (nine) as fast as they became 14, *i. e.*, set at work in the cotton mill. He knows that 1/6 is greater than 1/16. 1/2 of 1/5 he fails on. 256 to be divided by 12 he cannot do either mentally or on paper without considerable assistance. He remained a year in his first job and left for a better place working a notice. He was about three years in the next place and was in it when arrested. Arrested once for trespass at nine. Here for larceny which he denies, saying he was with a crowd he had never been with before and did not know what they were going to do. On close quizzing it appears he did have an idea of what they were going to do and that he did know them by name. He admits on further questioning that his first statements were not true. He admits running away from home three times, staying ten days once. His mother saw him and told him to come home but he refused and she asked the help of the police.

Face is asymmetrical, the chin being a little to the left of the median line. Lower jaw is inclined to be massive. Lobules are attached. Ex-

pression changes little and shows very little that is aggressive, more that is passive and sullen. Has many tattoo marks. Is too ready to proffer excuses in lieu of achievement.

Has lost 235 marks and has been in the third grade. Industrial school work is fair and night school work is poor. His work is fairly well done.

Police record: "Good home. Not disposed to work. Arrested twice before for trespass and stubbornness. Mill hand."

No. 63.—He seemed ambitionless. Did as asked in the carpenter shop, listlessly and never interestedly—"acted tired." Has a narrow face and a retreating chin. Eyes are not on the same horizontal line. Ear lobules are attached. Face, bearing and manner are suggestive of indecision and lack of force.

Has a "perfect" conduct record and his shop work is well done. In the night school he has done good work.

Police report: "Good home. Bad reputation. Mill hand, not disposed to work."

No. 64.—School to the seventh grade when, at 14, he left unnecessarily and against advice to go to work, a step he now regrets. 1/2 of 1/20 is correctly answered. 256 to be divided by 12 mentally is correctly and promptly answered. Went to work spinning staying two and a half months. Left because he was "tired of it," giving no notice. Then he loafed about half the time for a year and was sent here at the age of 15 for breaking and entering. He "had seen others do it" and thought he could. His mother, a widow, was never stern with him. Has lied to her but never stole from home. He has jumped freights a little—off for a couple of days or so. He plans to work when he gets out and go to night school. Why? "I want to learn something." See truancy record; arrested twice for truancy.

Is a bright, alert appearing little fellow with round face, a well shaped skull and regular, well-balanced features. Has two Darwinian tubercles and attached lobules. Right side of the face is slightly the more full.

Has a perfect record and so won first grade in six months. Labor report is "perfect" and industrial and night school reports are "excellent."

"Police record: "Previously in a training school for truancy. Fair home. Bad reputation. Previously arrested five times. Fined twice and committed once. Mill hand. Not disposed to work."

No. 65.—He had done some painting before arrival and as a painter here he does well, is industrious and willing. No evidence of a dominant purpose in life is manifest. His example is good rather than bad. Father is intemperate. His offences are "fighting and non-support." His face lacks character and refinement and shows asymmetries of his heavy jaw and of the rather small eyes.

Has a "perfect" conduct record and labor report. In the night school his work is fair.

Police record: "He is worthless and needs punishment. He deserted his family and the city had to provide for them."

No. 66. "Morally defective."—From an eminently respectable family. Graduated from a suburban grammar school. Took a year's work in a preparatory school of high standing but for no apparent reason instead of returning for a second year went to a similar school in another state whence he was expelled on being caught smoking for the second time. He dropped school at 16 against advice and under protest. Far a year he worked with his father. His father is an invalid, though still in business and the prisoner gives this fact as a reason why he suddenly left home and went south to work in a hotel. This step was for no ascertainably valid reason and was against advice and protest. He secured work and returned north because it "got too hot" in April. His parents wished to send him to college and will do so now if he will go. He does not care to go, however, alleging "it takes too long to get through." He admits he has no career in view for himself and has no plan for activity when released. If he has to go to school any more he wants to go to a business college; but the thing he would like to do is to help his father "to make some spending money and things like that."

He denies having read cheap literature much and explains his carrying the revolver by saying he had it in the south and on returning north did not discard it. Agrees that it is needless to carry one in Massachusetts. No affect was shown and no expression of regard for parents or resolution regarding future conduct.

He has many impracticable schemes to undertake none of which are finished or purposely abandoned and he brings home and associates with ill-chosen companions and chance acquaintances that cause surprise at his taste. He shows lack of filial regard and consideration. He stole a diamond from home and pawned it and at other times repeated the offense with other articles.

He has had gonorrhea; but denies frequent visits to brothels and masturbation. Face narrows rapidly from above downward. Left side is slightly the fuller. Skull lacks occipital fullness slightly. Likes history and humor he says. Has lost 30 marks in a year. Attained first grade after ten months. Record in industry is fair.

Police record: "Good home. Bad reputation. Previously arrested nine times. Committed on larceny charge of 1908.

No. 67.—Left school at 14 in the sixth grade to go to work to help his widowed mother. He would have been glad to go to school longer. He worked six months in one place and left for a better, but without notice. He stayed a year in one place from which he was discharged for leaving early to go home. Then he was nine months in a place and left because the work was too hard. $6.00 per week is the most he has made. He has loafed about a year and a half. He got in with bad company while loafing and got to going around stealing. Is here for larceny from the person—his first attempt. Has gonorrhea and admits onanism. Promptly says he has no plans for the future and is content to drop it there. Has drank some.

Has a very attractive face and a frank, respectful manner. Face is distinctly asymmetrical and tapers much. The forehead is of good height and width. Palatal arch is high and narrow. Expression and answers indicate that he is not very keen and not at all aggressive nor self-assertive.

No. 68.—Graduated from the grammar school and took the entrance examinations for high school at 14. His parents were not living but he could have continued school days through college had he wished to do so. School was dropped against advice and he has since regretted the step. He left mill work at the end of a year which was his next regular occupation, "tired of working, that's all" being the reason he vouchsafes. Then for three years he travelled with a "Variety Company" as a singer. He maintains he is satisfied with his career, that he could not have done better, that he has done nothing crooked and is here for drunkenness only. He has been under treatment for gonorrheal cystitis. Reacts not at all to suggestions as to taking a correspondence course or trying to get into a regular occupation or trade. Denies ever tramping but says he does not see how a tramp life is especially degrading nor how a travelling singer's life is next door to it because of lack of family and community life with their restraint and responsibilities.

He was said to be a user of cocaine before arrival and to have boasted to intimates that he had been the dealer or bank in faro games. He was fairly caught in a lie by the examiner one day. Lost 15 marks. Has not attended school here. His work has been fairly well done. Won first grade in six months.

Left side of the face is the more full and left eye is slightly the lower. Palate is high and wide. Lobules are semi-attached. Face narrows from above downward much and expression is markedly lacking in liveliness and cheer. He almost never smiles.

Police record: "Not disposed to work. Fond of women. Occupation, waiter."

No. 69.—This subject left school in the seventh grade at 14 to go to work, with advice, to help in the family support. He was nine months in a shoe shop and gave his notice to leave to begin farm work. This he stuck to for four years till the farm was sold. Then he returned to the shoe shop for a year and a half. Laid off for a month he went camping and stole some eggs on a foraging trip for which he was arrested and sent here for his first term. On release he worked most of the time for 14 months when he was again arrested for stealing his employer's auto, he being chauffeur, for a joy ride while the owner was at dinner. For this he is here now. His mother was the disciplinarian at home and has whipped him severely sometimes, mostly for lying and stealing. He agrees she did well. He has not planned on more school experience; but says he would go to a night school if there was one available. He handles long division and simple examples in fractions well. Has never tramped nor used alcoholics. Is innocent of sexual vices apparently. Is here for the second time.

Has a merry, attractive face with well balanced features. Is wide between the ears which show two small Darwinian tubercles. Malar bones are rather prominent. Is alert and observing. He cancelled the ciphers in two lines at once in the cancellation test.

Lost 50 marks. Won first grade in seven months. Night school work is fair. His work has been well done.

Police record: "Parents live apart and boy never had training. A 'tough' who has been complained of several times for malicious mischief. Might work if he kept away from the gang."

No. 70.—Has one brother in the State School for the Feeble-minded. Mother died when he was ten. Left school at 14 in sixth grade. His parents agreed that it was best for him to go to work. He repeated none of the grades. Thinks he was most backward in arithmetic. "Never took much interest in it anyway." 256 to be divided by 12 he gets nearly right but not quite and explains he is at work in division in the night school here. Had not much difficulty with subtraction but found addition easier. After a few months' work as messenger boy he left without notice. He was honest as messenger, but did not like the work—"too much running around and too much night work"—so he left without notice. Sent to the Lyman school as a stubborn child, on release he was bound out on a farm where he remained eight months till his father got him back home when he worked in a store for small pay. He had five or six jobs more before he began to go crooked. At first he saw an opportunity for a break and attempted it successfully. Later he repeated this twice but it was all brought home to him when the property was found on him. He was loafing and in need of money. He says he was always a lone worker. (See below.) He intends to lead an honest life but has no definite plan—thinks of the navy as a possibility. The idea of a correspondence course or evening high school does not appeal to him.

Face is asymmetrical, also his mouth. Eyes are not quite alike. Skull is deficient in occipital region. Speaks rapidly and not very distinctly without opening lips very much. Is very tenacious of his ideas and could hardly be convinced that one's bad company and orphaned condition were not valid reasons for a downfall. He is very reluctant to assume the responsibility for the failure he has been easily shifting on to the above ill chosen sponsors.

He was distinctly depressed at one time and was psychiatrically examined by the physician when he talked of death very freely. He admits without affect, having written two letters to be found in his room after his suicide. His plans for suicide if he really intended to commit the act, had not been formed as quizzing showed. Asked how he planned to take his life he replied: "Hanging, I suppose." and he was at a momentary loss to tell how he would procure the means. The morbid mood passed after a few days' observation in the hospital. This boy and his younger brother suddenly began a series of breaks and succeeded for some weeks in evading suspicion; so that the police were at their wits' end. The case was doubly annoying to them, too, because the boys wantonly destroyed much property that could not be carried off.

Conduct record is "perfect." His work has been fair. Indictment, 15 counts of breaking and entering. Is a second comer here.

Police record: "Home with father. Bad reputation. Committed to the Lyman school. Not disposed to work."

No. 71.—Finished the course at the Suffolk school where he was sent for breaking and entering. He can handle long division and simple questions in fractions. Father is intemperate. He began at 11 to be destructive and to play truant. He has run away often on two or three days' trips deceiving his mother and disappearing when she would have punished him. He has had many "jobs" and claims he gave a notice on leaving. His only plan for the future is to go on the stage as a dancer, an occupation in which he has had some experience. Has transgressed sexually with girls but denies onanism.

Skull is well shaped. Eyes are rather prominent. Palate is high and narrow.

Has lost 130 marks and never attained first grade. Is promised a restoration of the marks if he goes "perfect" in two months. Industrial school record is "good" and labor is "fair."

Police record: "Poor home influences. Bad reputation. Previously arrested eight times and committed once. Not disposed to work."

No. 72.—Attended school to the fourth grade taking the second grade over, including a French school two years and could read and speak French almost as well as English he says. Left school at 14 to begin work in a cotton mill of his own choice and with the assent of his parents. He stayed seven months and left for a better job. He is next the eldest of five children. He never tried long division till he came here and here he had to give it up after trying three months to learn it. He volunteers he "can't learn it." He knows the multiplication tables. He has no feeling of blame for his mother; but expresses none but adverse judgments for his father and adds a doubt whether the man is really his father. The only reason for the suspicion is that "he treats us so." He is convinced that he has been treated the most harshly of all. "They all pick on me." He admits lying to his parents, stealing many times and running away many times, occasionally staying "three or four months" and that he should have been punished, also that he was worse than the others; but insists he was punished too much. When away he worked, never jumped freights or tramped. He says that the others had better treatment at home and more money than he had and that to get any money he had to steal it. His story is: "They used to strip me and lay me on the bed and whip me with a broom handle or something like that . . . . and sometimes they would come back and give it to me again. I've had 20 lumps on my head. Once when I would not rock the cradle I ran away and when I came back he beat me so a policeman came. . . . . I ran out and told him and he came in and told him to let me alone."

Beside the tabulated information he has been on probation four times he says and has broken his probation twice. He is here as a stubborn

child. In industrial and night school his work is good. Lost 140 marks in a year and took 11 months to win first grade. Is serving two concurrent sentences. In the laboratory he was not quick to grasp directions and is not at all critical but flounders on without taking pains. Is ready with excuses after mistakes.

Is undersized. Has an oval, rather attractive face with well balanced features. Mouth is large and teeth rather uneven.

Police record: "Fair home. Bad reputation. Arrested six times for larceny. Not disposed to work."

No. 73.—He left school when 12 years old as his "father could do nothing with him" and told him if he would not stay in school he might as well go to work. After six years' work in a factory he left with good recommendations to come to Boston. He worked two years in a factory. Then in 1907 in hard times he enlisted in the army and served two years, working as a baker. About a month before his honorable discharge he and another baker planned to raise some money to start in business. The partner got him to breaking and entering and the day after his discharge from the army he was arrested. He is in the reformatory night school and is learning the multiplication tables and values the opportunity.

Has a well-shaped skull. Face and features are large but not illy balanced. Nose is deflected to the right, congenitally the patient thinks. Has attached lobules.

In the laboratory he seemed interested and very willing to cooperate. In the ethical discrimination test when he suspected that his arrangement was disappointing he claimed he reversed the order. Given the benefit of the doubt his score is improved.

Has lost 25 marks. Won first grade in six months. Night school work is "fair." Labor is "perfect."

Police record: "Bakery hand. He is married but has no home of his own. Not much is known of him."

No. 74.—Graduated from ninth grade at 17. Father is dead and he thought he should go to work. Began doing office work in a blacksmith shop. 1/2 of 1/5 he fails on as well as 6 per cent of 150. 256 to be divided by 12 he has to give up. Says he had more difficulty with subtraction than addition and volunteers "I never did like arithmetic anyway." He whistles through his teeth as he waits between questions. Worked only a few months in a place and loafed much. His first wrong doing was being out nights and in bad company. He denies all sexual transgressions. Plans to go back to the blacksmith shop. He could get to be floor man. Has no higher ambition. Evening high school attendance does not appeal to him.

Faces curves to the left. Lobules are attached. Palatal arch is high and narrow. Has slight internal strabismus, right. Skull is deficient in occipital region and temples lack fullness. His glance avoids the questioner. Mouth is asymmetrical.

Police record: "Good home. Bad reputation. Previously arrested five times for drunkenness, larceny and breaking and entering. Laborer, not disposed to work and is worthless."

No. 75.—Left school at 16 in the eighth grade to help his mother. The subject did not regret the necessity. "I did not take much interest in it" (school). He says 1/6 is greater than 1/16 and fails on 1/2 of 2/3. 256 to be divided by 12 he gives correctly on second attempt. He worked one and a half years with his first employer and left for a better place without a notice. He denies onanism but is convicted of it in the conversation. He denies all sexual transgressions with women.

Is here as a stubborn child but is very reluctant to give details; but it finally appears that wordy discussions follow between him and his sister when he goes home, the point being that he did not work enough and fought too much and otherwise wasted his time. He expects to go back to house painting but has no definite plan. Has no evident sympathy with the idea of studying design or sign painting so as to rise in his trade. Has a long face and a rather heavy jaw. Lips show many curves and are what is commonly called sensual but his face is not attractive. His expression is sanguine but not determined or dignified. Lobules are attached.

No. 76.—School through the eighth grade; but is not a good scholar and wanted to get to work leaving school against advice. Took some of the grades over. Can handle long division. 1/2 of 1/20 he answers correctly. Has never slept out except to stay a night or two with friends when he had done something for which he would be punished at home. He stole a horse and carriage for "a joy ride" for both commitments here. Told it seemed very foolish to steal the same thing twice he replied: "The same as everybody else, you think you are not going to get caught but you are." Has not wasted time or money on women. Has had no venereal disease. Is an onanist.

Has lost 45 marks since arrival but so distributed that he won first grade in seven months. Industrial school record is "excellent" and labor report is "perfect."

Police record: "Nothing is known of his parentage as he was left when a baby on the steps of an orphanage. He is a bad boy. Is tattooed."

No. 77.—Morphine habitué. Previously arrested five times. Has been treated at Foxboro for inebriety. Has a trade and can get work at any time. Has a retreating forehead and heavy jaw which is not symmetrical. In the cloth mill here he was skillful and had real ability above the average. He mingled little with others and seemed anxious to get through with his sentence in the shortest possible time.

Lost no marks and so has a "perfect" record. Has not been in the reformatory schools. Shop work has been very well done.

Police record: Home is excellent. Reputation is fair."

No. 78.—Father is intemperate. A farm laborer. He worked well and faithfully at the several varieties of work given him in the kitchen where he was fairly adaptable. He minded his own business, never indicated that he wished to learn a trade. Has well balanced features of the strong type. Right eye is decidedly the lower in level. Has a heavy jaw and aggressive expression.

Conduct report is "perfect" and his work is well done.

Police record: "Poor home. Does not work steadily and drinks to excess."

No. 79.—Has always lived at home. Left school at 14 against advice to go to work in a cotton mill, stayed one and a half years and changed to the shoe shops for more pay and because he "did not like" and has worked in three since. Has never been discharged. He reads fluently, handles long division readily and knows a little about fractions. He has been arrested twice, each time for larcency, and each time was sent here. Has never worked alone and the last time he had been drinking which he says was unusual.

Is alert in speech and action and is quick of comprehension. He promptly resented the question whether he had ever "tramped it" and volunteered "I draw the line right there." Features are well balanced and symmetrical though rather small and lacking in dignity. Police have no record of him.

No. 80.—Sickness of his mother prevented him from going to school after the eighth grade at the age of 18 just as his class was attacking square root. He would have gone to school if he could. He worked a year at gardening, then as a railroad newsboy for 9 months, then at learning the plumbing business for a year. For the last five or six years he has been stealing in a small way, but in the last three years he has been with those who drank and has drank with them and joined them in their thieving. He has been on probation once but broke it. Has never "framed up a job." He denies venereal disease but admits loose sexual practices. Plans to go to his sister's farm and work on release—likes that better than plumbing.

Industrial school work and his shop work are well done. Won first grade in seven months. Has lost 55 marks. Right eye is a trifle lower and the left side of the face is a little more full. Palatal arch is too high. Lobules are semi-attached and there is a left Darwinian tubercle. Face has more expressiveness and character than most prisoners show.

Police record: "In House of Correction at ——— and ——— and ——— jail. Parents living. No home. Not disposed to work. Committed once for larceny.

No. 81.—Father is intemperate. Left school in fifth grade at 14 to help in the family support, a necessary step but one not distasteful to him. 256 to be divided by 12 he gives as 21 but he can't handle the remainder. Says it was hard for him to learn division. Had no trouble with subtraction. Kept his first job, teaming at $12 per week, nearly two years and left without notice as he found a better place. Was once discharged for smoking on a load of cotton. He began drinking about two years ago and breaking and entering about nine months ago. Was punished at home for stealing and truancy. Admits that he knew better than to steal. Admits onanism and patronizing fast women but denies venereal disease.

Expects to drive a team when he gets out. Has no idea of taking up any further educational process. Has a round, good natured face, and a quiet, attractive bearing. Is altogether one of the most winning personalities in the group. Angles of the jaw are rather prominent and are not quite symmetrical nor are eyes quite symmetrical. The asymmetry of the nose is doubtless traumatic.

Conduct record is "perfect" and labor nearly so. No reformatory school records.

Police record: "Good home. Poor reputation. Committed once to a truant school. Teamster, not disposed to work."

No. 82.—Left school in the eighth grade because he feared expulsion or commitment to a truant school on account of destroying property and truancy. He could have gone to school more had he chosen to do so and his father hopes to send him to some school on release. On leaving school he went to work in an office but left because he was "lazy and shiftless—dissipation in general." He had two other jobs which turned out similarly except that he was discharged from the two latter. He was sent away for five months by his father because of the bad company he kept and because the police were watching him and the crowd he had been with. He admits sexual transgressions, but denies onanism. Six per cent of 150 he gives correctly. He admits he has gone back to dissipation and shiftlessness each time he has tried to work in the city where he was brought up.

Is a very attractive, alert looking boy. Mouth is markedly asymmetrical, palatal arch is high and narrow. Ear lobules are semi-attached. Skull is of good typical shape. His eye avoids the questioner. The impression that he leaves is that he is pleasure-loving and impulsive, lacking aggressiveness and self-control.

Has lost ten marks but won first grade in first six months. Industrial school report is "good" and labor record is "fair."

Police record: "Poor home, bad reputation. Previously arrested twice for larceny and breaking and entering. Disposed to work."

No. 83.—Left high school in the first half year against advice because he "wanted to—was sick of school" and he wanted to learn printing. He thinks he was punished in anger by his father and so was injured rather than helped; but that he deserved all he got. He worked at printing then and has ever since, nine years. Got into trouble first as a truant, then with boy companions out evenings, stealing and then breaking. Has drank "only a year" he says. Never really tramped for more than a week or two at a time; but has ridden as "blind luggage," always with some of the "fellows from the corner." Feels he never wants to marry and settle down. Has no ambition but to go to work. Has had gonorrhea but has not spent much money or time on women. Admits he could have made a great deal more of himself if he had chosen his friends and spent his time more carefully.

Is undersized. Eyes are small and dull. Face is thin and has a half smiling expression which is cynical for the other half. Admits onanism but denies excess.

Is here for the third time transferred from a House of Correction. Has five counts of larceny against him. Has been returned here twice to serve out unfinished sentences having broken his parole.

Industrial school work is "perfect." Labor record is "perfect." Has not yet had time to earn first grade on this sentence; but under former numbers he has lost but few marks.

No. 84. "Morally defective."—Father is intemperate. This prisoner was disciplined justly, as he now admits, by his teacher of the ninth grade and left school shortly before graduation. Sent to a private school he finished the two years' course in a year and a half. While at another private school, in his third year there, he was suddenly called home by his father and set at work in his office to learn the business. The reason for this sudden change of plan on the father's part the prisoner wishes the examiner to believe to be so deeply hidden by the father, that he, the prisoner, cannot fathom it.

The office work was distasteful after the first six months, but was continued for two years. He was once arrested for making a disturbance with some college boys and placed on probation. He never quarreled with his father he says but refused to go on in the office. His father arranged for him to enter college, yielding to his wish and "hoping he would find something he could stick to"; but the subject was arrested for larceny committed as a prank and sent here.

He has a soft voice, a slight lisp and shifty eyes. His answers are constantly rearranged and qualified and his smile is empty and conventional. The features are regular but the face lacks character and symmetry. One small Darwinian tubercle shows.

In the laboratory notes taken a year ago appears the following: "Very loquacious. Interjected remarks and asides in the association test. Explained that he 'was thinking of something else' and as he was on his way to the door showed a letter and from it a young woman's photo and remarked in lieu of adieu, 'It's mine too,' all very obviously 'lugged in.'"

He has lost 35 marks but gained first grade in six months. Labor report is "perfect." Is a second comer here.

Police record: "Jail for disturbing the peace. He is a wanderer and needs discipline. Has run away from home a great many times."

No. 85.—Father is intemperate, mother is dead. In the laboratory he is alert and interested. Answers promptly but volunteers nothing. He starts quickly and does deftly as directed. Has regular and well balanced features. Manner is alert and self-contained.

Conduct score is "perfect." Labor report is "perfect" and night school report is "excellent."

Police record: "Previously committed to Lyman school. Might have been a good boy if he had a good home."

No. 86.—In the laboratory the subject was a rather stolid and dull appearing boy with changeless expression; but he seldom had to be redirected and grasped new ideas well.

Conduct record is "perfect." Labor record is "perfect," and industrial school report is "excellent." Night school report is "very good." Previously committed to Suffolk school.

Police record: "Bad reputation. Previously arrested four times: assault and battery, neglected child, larceny and violation of a city ordinance. Not disposed to work."

No. 87.—An English sailor. Is very deft with hands and attends well following directions and suggestions faithfully. Has been in California and along the Atlantic coast where he acted as fireman on steamers at times. Complained that his schooling has been very limited. He was unaccustomed to mill work but readily learned to run a machine in the cloth mill. He did not take life here or elsewhere very seriously—never seemed dissatisfied. Skull is narrow and long and face is asymmetrical, the chin being deflected to the right. Indicted for larceny. Police say they know nothing of him.

Conduct record is "perfect." His work was very well done.

No. 88.—Graduate of a grammar school at 14, being sixth of a class of 144. He would have liked to go to high school but felt he should go to work to help in the family support "though it was not an absolute necessity." Office work came to him and he stayed two years in one place and one and a half years in another. The firm failed in the second instance. He has a reference from each place. He left the first place as a better offered and left without notice. He was honest with employers. After an idleness of two and a half months he got discouraged and got in with the idle. He heard talk of "doing this and that job" and then an opportunity offering he took money. He is eldest of three. His father was sick and bills kept piling up at home. He spontaneously returned the money within three hours but the money belonged to the employer of the man from whom he stole; so complaint was made and he was arrested. He has a perfectly good record up to the time of the theft. His plan is to go back home to live down his disgrace getting work as soon as possible. Shows normal affect in speaking of home and his disgrace.

Face is round and features well balanced. The right side is possibly a trifle the more full. Expression is frank. His glance meets his interlocutors unflinchingly. He hesitates in his speech; but it is to choose words and they are well chosen. He is the only color blind subject of this group.

Has a perfect conduct record and so won first grade in first six months of course. He has no school record here; but labor record is "perfect."

Police record: "Committed for larceny from the person. Good home. Good reputation. Electrician, disposed to work."

No. 89.—Parents separated five years ago since which time he has been with his mother most of the time. She has always looked after his discipline. He has, however, been to sea with his father some. His mother punished him for staying out too late and for being with associates she

did not approve, and for stealing from home. He never ran away nor slept out. At 15 he was sent to the Lyman school by his mother to avoid his arrest for firing a revolver in the air while with a crowd of boys. At the Lyman school he finished ninth grade grammar school work and can handle fractions, decimals and easy examples in percentage. He broke his parole from the school by drinking and going with fast women, and was returned whence he was transferred here. He intends to "go straight" but has no plans as to how he will spend his spare time so as not to fail. Has no ambition but to go on with stationary engineering. He was the youngest man it seems to whom the office had ever issued a first-class stationary fireman's license.

Has a frank, attractive bearing and good features. Left side of the face is slightly the more full and the eyes are not quite on a level. Palate is high and narrow and he is a mouth breather or has been. No adenoids.

No. 90.—Left school at 14 when near graduation from ninth grade on account of taking diphtheria. He attended evening high school one season. He worked for a newspaper one year and a half and was discharged for fighting. Then he worked in a machine shop and was discharged after he had spoiled a $60 plate. Has had four jobs since and has loafed about a year in six. He began to go crooked by keeping some of the money he had collected. Was put on probation for breaking and entering and is here for receiving stolen goods. He brags of getting off with a $10 fine for stealing a bicycle. Has drank. Denies all sexual vices and transgressions but admits others freely. Denies gambling and picking pockets. The work of a petty detective and attachment server which he did was not distasteful to him. He is rather proud of it. "I used to be able to catch them pretty well." Face is asymmetrical and eyes are not on the same level.

Has a "perfect" record as to conduct and labor. Has not been in the reformatory schools.

Police record: "Fair home. Bad reputation. Previously arrested twice for breaking and entering and stealing a car ride. Not disposed to work."

No. 91 "Morally defective."—Left school at 14, having graduated from a grammar school very near the head of his class. He declined to go to high school against advice and opportunity for nothing but "dislike for school." Had no opening ahead nor any pursuit he wished to follow. He worked for his father for a year then changed to shoe shop work because he could make more money. Has never considered whether this was a good move or not. He was discharged after about a year for "fooling about the shop." He ran away for three weeks at 13 years of age as he was afraid to stay after stealing $13. He was stealing occasionally from that time on; but was never brought up with a round turn till six years ago when he broke into a store and was put on probation. This he broke but the case was filed. He was employed in a large office for 14 months and there learned stenography and typewriting. About two years ago he broke and entered again, always for what there might be in

it, always alone. Has never made much—"had poor luck at it." Kept his parole given him the first time from here but broke one given him by the judge. Has never been drunk. Denies onanism and all sexual transgressions. Has not made plans for his future alleging that he has not been in communication with his people. Dates the beginning of his delinquency back to the end of his school days when he pilfered for spending money. Never has gambled nor picked pockets. Has no love for the adventure of theft but seeks an easy way to secure money. Has never been troubled with the thought of depriving others of their own. Never carried concealed weapons. Never planned how he would meet opposition from the owner.

Asked what he thinks the chances are he will not return to his former practices he says: "I've come to the conclusion that there is nothing in it anyway."

In the laboratory at the first interview this man's attitude was debonair and egotistical, almost patronizing at times. He tried to make the trumped up reason that he was "tired staying there" serve to explain why he left a good position after 14 months and when pressed for a reason assumed a look of injured innocence and persisted in it; though put upon his honor to give the real reason. Later he admitted he left because he was taunted with his record here and knew it was only a matter of time when he would be discharged. He persisted in his lie, though past all usual limits. After this passage-at-arms with the examiner his egotistical bearing, interruptions, wordy explanations, excuses, etc., all vanished, and he became self-abasive and attentive.

The reasons for his failures he at first gave as "bad company." Asked if he would have ascribed his success had he achieved such to his companions he replied "No" and quickly retreated from his position, admitting that he chose his own companions and was responsible for his own success or failure. This man knows right and wrong as his score in the ethical perception test is 100 and he can pay the price of achievement when he chooses as his score is nearly 33 minutes in the achievement capacity test. This was pointed out to him and he reluctantly admitted that his failure was due to lack of moral stamina.

The man is a glib and skillful liar, and in spite of his denials is probably a sexual pervert having been caught by an officer here with his clothing disarranged in the company of another prisoner. He is a "pretty" boy with clear complexion, good color, regular, well-balanced features, an engaging smile and ingratiating manner and speech. One Darwinian tubercle shows. Skull is about normal. Face is that of a pleasure loving, sanguine person, rather than that of a hardened, aggressive one. On his first stay here he started to "stick it out." This he gives as the reason why he stayed 18 months when he could have gotten out in nine. Asked why he got so many marks he said, "carelessness," with a shrug.

Police record: "Larceny at—of property, value less than $300. When admitted the first time: "Good home. Very bad reputation. Arrested once before for breaking and entering and suspected of more crimes. Not disposed to work."

No. 92.—Left school at 12 while in the sixth grade against advice to go to work as he was tired of school and "wanted some money to spend." Arithmetic bothered him most. 256 to be divided by 12 he answers correctly. Never studied fractions. He worked two months spinning and left because he was "sick of it," without notice. He has been discharged four times for "back talk, fighting with fellers," etc., but never for dishonesty. He has always lived at home. Has drank for a year a good deal. Had not been arrested before the apprehension which brought him here except once for stealing when he was small.

He has no ambition beyond getting work at his trade, that of stone enameller or finisher. Is an onanist but has not been guilty of other sexual transgressions apparently.

There is a very slight internal strabismus, left. The eyes are rather near together. Angles of jaw are rather prominent the left slightly the more so.

Has lost ten marks and has not been in the reformatory six months yet. Industrial school work is "excellent." Night school work is "poor."

Police record: "Complaint, receiving stolen goods well knowing they were stolen. Good home. Good reputation. Arrested once for gambling on Sunday. Jeweler, disposed to work."

No. 93.—Left school at 17, in eighth grade in a training school. 256 to be divided by 12 he does correctly but gives up ½ of ¾ at once, though he talks of mensuration and percentage. Six per cent of 150 he fails on. He stole to raise money and was a lone worker. Has not tramped nor picked pockets. He denies all sexual transgression except onanism and claims to have ceased that. He plans to go back home to help his father in his bake shop. Has no idea of trying a correspondence course or evening high school or anything of similar nature.

Eyes seem near the top of his head as the forehead is low and narrow and the face is long. Palatal arch is high. Face is slightly asymmetrical Expression is amiable but lacks responsiveness and alertness.

No. 94.—He is a willing worker, here at the occupation in which he has experience, farm labor. He is trusted in minor matters outside the walls at times and never has betrayed such trust. His plan on release is to go west to the harvest fields.

Previously committed to the House of Correction. Has a "perfect" record as to conduct and labor.

Police record: "Poor reputation. Placed on probation once for breaking and entering. R. R. brakeman. Deserves what he got."

No. 95.—Left school at 12 in the eighth grade. 1/2 of 1/16 he fails on mentally but does it slowly with pencil and paper. His father's death stopped his school days. He has worked for the last 7 years in a jewelry factory being advanced by five promotions and was getting $12.50 per week when arrested. He was honest with employers and will go back to work for them when he gets out. Never drank. Has had only himself to look out for in the last four years. He was in this State for a week on

a visit to relatives when he was arrested for assault. He and two friends were in a row which started with reference to a girl. Some of them had been drinking. He has loafed a year in the last three. Has never jumped freights but has worked his way about on boats and barges a great deal. Admits onanism but denies other sexual transgressions.

He volunteers that he has two or three inventions, one a magic stove lighter, another the interior fittings of a dress suit case for a young man. He says that a patent has been allowed on the latter article. His other attempt is to make a working model of a phonograph which will not require winding but will supply its own energy.

He is in the third grade for 30 days because of an attempt to escape. When detected he stoutly denied in the face of good evidence—the rope he had made—for some days and had to be watched as he tried to choke himself with suspenders and refused to speak or stand. This mood passed and he is smiling but shamefaced and takes sensible views.

Is undersized. Has a very long, thin face. Palate is high and narrow. He blushes very easily and is easily influenced under ordinary conditions.

Police record: "He is a bookbinder and came from New York State."

No. 96.—Left school in eighth grade at 16 because of his mother's death. He would have gone on with school if he had felt he could. 256 to be divided by 12 he does with a little prompting but cannot reduce the fraction to lowest terms. Says 1/6 is greater than 1/16. 1/2 of 3/4 he fails on. He worked first for eight months in a wholesale house; was never discharged. He saw an "ad" for a cook's helper in a lumber camp and applied, leaving his job without working a notice. In eight months his cook's job was over and he found another in a slate quarry. For the last five years he has stolen some; little things at first. Has tramped some and been a pickpocket. He was generally a lone worker.

Has a slightly asymmetrical face the expression of which is pleasant and smiling but lacks distinctive character and force. He three times volunteers that he "could not stick to a thing" or "had a roving disposition."

Has lost 50 marks but won first grade in seven months. Is here for the second time. Labor record is "perfect." No reformatory school experience. Indicted for breaking and entering and larceny from a freight car.

The police have no record of him. He was sentenced to the House of Correction for eight months and sent here.

No. 97.—Graduated from grammar school at 17 and went to work with the approval of his parents in a shoe factory where he remained 16 months, leaving for a better place and working a two days' notice. He worked as a printer two years in one place and did not return when his annual vacation expired. He has loafed about 11 months in three years. Two years and a half ago he was arrested for attempting breaking and entering. He had been drinking about three months then. He had been going with a disreputable gang for a year or more. Later he was arrested for assault, being drunk, breaking and entering, etc., 19 times in all.

Is going to work and keep straight on going out but has no definite plan. Admits promiscuous intercourse but denies onanism and venereal disease.

Prognathous and rather massive jaw, prominent eyes. Asymmetrical face, left side being decidedly the more full. Palatal arch is high and narrow. Is quick of apprehension and alert. Has a "perfect" conduct record. Labor is also "perfect."

Police record: "Fair home. Bad reputation. Previously arrested four times for breaking and entering, larceny, idle and disorderly conduct and drunkenness. Not disposed to work."

No. 98.—Member of a harmonious, respectable and cultured family. At eight years of age he began to learn printing and has followed it in some form ever since. His father died when he was eight or nine years old and he has been advised by his brother with whom he was never at odds. He ran away from home about this time; but was gotten back and at three other times, once when 18, to enlist in the regular army. He was once on probation for truancy and kept it. (See truancies.) At 19 he graduated from high school and went to work at $10 per week printing. At that time he had no desire to go to school longer and adds: "My folks knew it was of no use to send me if I did not want to go." He was soon a competent linotype operator and earning $25 to $30 per week. He never kept any place long, however, and he visited many cities and worked on many papers. He also worked at many different occupations: printer, sailor, setter-up of linotype machines, policeman, tramp. He has not been a tramp for long at a time and has not been long broke, he says.

Is here for larceny of jewelry from an aunt, an offence committed while stranded with a female companion with whom he was travelling. He was treated here on and after arrival for a venereal disease. His plan is to return to the largest city of his native State and look for a printer's job.

He interrupted and anticipated in the laboratory in a self-assertive, egotistical but inoffensive way till plainly told to cease so doing, and frequently sought to exculpate himself and express his disgust with himself; but only for being in such surroundings. He denied that the woman he was with at the time of his arrest was his mistress; but admitted she was not respectable and that she had been registered at hotels with him and then reluctantly that she was his mistress "at that time."

Features are regular and face is oval. Forehead is not high nor wide. Palate is very high and narrow. Lobules are semi-attached. Right side of the face is slightly the more full, and left eye is slightly the lower.

Has lost no marks. Won first grade in first six months. Industrial school record is "perfect." Has not been to night school.

Police record: "Naval prison, Boston, desertion."

No. 99 "Suicide."—A very quiet man who mingled so little with the other prisoners that he really seemed to shun them at times; yet no one seems to have felt his dislike and he was not morose. Skull was well proportioned and shaped and face was attractive with well balanced features.

In the laboratory he volunteered nothing but a few well chosen and well expressed questions anent the tests, one being what the record was in the achievement capacity test. At that time this record was 46 minutes and 45 seconds. The subject gave no hint of his intention but his score is the record for this group, 52 minutes and 46 seconds, and his median standing in all the tests is the highest but one. Later he suicided in his cell using a noose made of bed ticking of which the loop was securely sewed on a sewing machine, evidently by himself, as his work was running a sewing machine in the tailor shop. The other arrangements were made in a unique and careful manner, clearly having been all thought out in detail so as to be effective. No relative or friend could be found to claim knowledge of him, the addresses he gave on arrival proving fictitious. No clew to his identity could be found nor any reason for his suicide nor any hint beforehand that it might occur.

Here for "attempted breaking and entering." Had been in House of Correction in Boston for "similar offence." Lost no marks and so had a perfect record. Labor, "perfect." Not a member of the reformatory schools.

No. 100.—School to the seventh grade, left at 14 to go to sea of his own choice and with parental consent. He "wanted to go off into the woods and around with the boys." At school his last work was in decimal fractions. None of the grades were repeated. At 15 he entered the navy and was honorably discharged at 19. His first crooked act was to break into a vacant house he saw while "broke and despondent and didn't care what became of him," and "went in on impulse." Arrested while trying to dispose of the goods he was placed on probation. Neglecting his monthly report resulted in his surrender by the probation officer and sentence here. He has not been a free user of stimulants, and has spent very little money on fast women, but has had gonorrhea. Has sought medical advice at the hospital for masturbation.

Physically a magnificent specimen, easily nearest to the perfect type of any in the reformatory group. Free from the stigmata of degeneracy except for semi-attached lobules. Features are harmonious and expression is alert and changeful. In the laboratory he took up the work on the tests handily and understandingly and showed unusual interest therein. He asked good questions, *e. g.*, for the record of others in the achievement capacity test and he spontaneously asked anent a chance to study here. It should be added that he has the reputation among the officers who have had him in charge of being a good deal of a braggart and of being very adroit in getting out of doing disagreeable tasks, also of being lazy. The drill master, however, says he is the most valuable demonstrator of calisthenics he has ever had and that his leadership inspires the whole squad to do its best.

Lost 25 marks and is still in the second grade. Has had no school experience here. Labor record is fair.

MANIFESTATIONS OF MANIC-DEPRESSIVE INSANITY IN LITERARY GENIUS.

Thesis presented for promotion to the grade of Assistant Physician, by

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The question of the relation of genius to insanity is one of absorbing interest, and has been discussed by writers of all ages. The ancients were unable to differentiate between the revelations of the wise and the divinations of the insane. They believed that both classes of individuals were inspired, the genius by a benign divinity, and the insane by an evil spirit. The Greeks had but one word "mania" to designate enthusiasm, inspiration and delirium. The writings of those who have made a study of the relation of genius to insanity would indicate that they are closely allied. Plato[1] said, "Delirium is not an evil, but a great benefaction when it emanates from divinity." Aristotle said,[2] "There is no great mind without a mixture of insanity." He also stated that under the influence of congestion of the brain there were persons who became great poets, prophets and sibyls. Democritus[3] made insanity an essential condition of poetry. Pascal wrote, "L'extrême esprit est voisin de l'extrême folie." Shakespeare affirmed that the lunatic, the lover and the poet were of imagination all compact. Dryden wrote,

> "Great wits to madness sure are near allied,
> And thin partitions do their bounds divide."

Wordsworth,[4] in speaking of poets, said, "We other poets in our youth commence with buoyancy, but it results finally in despair and insanity." James Sully,[5] after a careful study of the subject, concluded that there was undoubtedly a relation between high

[1] Phaedo.
[2] Problemata, Sec. XXX.
[3] Horace, Ars Poet., 296-297.
[4] Resolution and Independence.
[5] Genius and Insanity, Popular Science Monthly, Aug., 1885.

intellectual ability and mental derangement. Nisbit [6] came to the conclusion that genius and insanity are but phases of a morbid susceptibility of, or want of balance in, the cerebro-spinal system. Lauvrière [7] says, "There is scarcely, in effect, a human faculty of which the excessive development cannot very nearly touch indifferently either genius or insanity, without its being possible to trace between the two extremes the least line of demarcation." Von Kraft-Ebing wrote, "The fluctuating lines between sanity and insanity can oscillate between the two extremes of genius and mental disease."

Grasset [8] affirms that "between calm, cold reason and a transport of passion, between originality and eccentricity, between nervousness and agitation, between a person that is slightly touched and one who is demented, there are all degrees of transition, and it is impossible to say where insanity begins. A sharp line would be arbitrary and false."

Not only have we the testimony of those who have made a study of the subject, but we also have the writings of geniuses who at one time or another have shown manifestations of insanity. Diderot,[9] who died insane, said, "O, how near are genius and madness! Men imprison them and chain them, or raise statues to them." Lamartine wrote, "The genius carries in him the principles of destruction, of death, of insanity, as the fruit carries the worm." Voltaire [10] said, "The heavens in forming us mixed in our life reason and insanity." Dean Swift [11] affirmed that genius was dependent upon madness." Lord Beaconfield said,[12] "I have sometimes half believed, although the suspicion is mortifying, that there is only a step between the state of those who deeply indulge in imaginative meditation, and insanity. I was not always sure of my identity, or even existence, for I have found it necessary to shout aloud to be sure that I lived."[13] Tolstoy said that philosophical skepticism had led him to a condition bordering on insanity, and

[6] The Genius of Insanity.
[7] Edgar A. Poe, Lauvrière.
[8] Semi-Insane and Semi-Responsible, Grasset.
[9] Diderot, Dictionnaire Encyclopèdique.
[10] Dissertation on Man.
[11] Tale of a Tub, Swift.
[12] Contarini Fleming.

adds, " I imagined there existed nothing outside of me, either living or dead, and that objects were not objects, but vain appearances. This state reached such a point that sometimes I turned suddenly around and looked behind me, in the hope of seeing something that was not."

In observing the insane, the symptoms which stand out most prominently are peculiarities of action, hallucinations and delusions, defects of reasoning and judgment. Just where the line can be drawn between the physiological and the pathological manifestations of these characteristics is a question. The psychology of the normal glides imperceptibly into the psychopathology of the insane, and genius appears to flourish on the borderland between the two. False perceptions are widespread, and to the excited imagination may occur at any time. There are cases on record where large numbers, under the stress of religious or patriotic excitement, have seen signs in the heavens and heard voices from the sky. The soldiers of Constantine saw a cross in the sky bearing the inscription, " In hoc signo vinces." When these false perceptions are not registered as such, and when they persist, we have the hallucinations of insanity. Here again we see the difficulty in dividing the normal from the abnormal, the sane from the insane. Lauvrière says,[11] " Does it not too often happen that the vision of the artist degenerates to the hallucinatory obsession, if not to ocular perversion, the inspiration of the poet to delirious wanderings, philosophic contemplation to ecstatic vision, the obstinate logic of the scientist to arguing monomania, the imperious energy of the man of action to criminal impulsion? And in how many celebrated cases, to the great consternation of humanity, this transition is tragically accomplished."

Difficult as it is to draw the line between false perceptions and hallucinations, it is equally difficult to differentiate between false beliefs and delusions. According to Prof. Ribot the difference between the genius and the insane is the fact that the former has critical sense. While he possesses the ardent and vivid imagination of the insane, he exercises the critical sense concurrently with the creative idea. The insane, without this inhibition, wanders on into the realm of the impossible and the ridiculous. This rule, however, does not hold in the case of the literary genius. The genius

[11] Edgar A. Poe, Lauvrière.

of poetry and fiction involves the special exercise of the imagination, unhampered by retrospective experiences or sane and logical anticipation, and leaps to conclusions not discerned by reason. When the imagination extends beyond the bounds of possibility, and pictures the unseen with a vividness and clearness seen in the works of the poet and novelist, the borderland of insanity is being approached, if not passed.

Having read the testimony of those who have made a study of the relation of genius to insanity, as well as of those who have combined the two, let us consider briefly the manifestations of insanity as seen in the genius. The collection of facts on this subject is not easy. The term "insanity" has so long been associated in the lay mind with all that is grotesque, repulsive and disgraceful, that where it has existed in the genius or his family the biographers have usually carefully concealed the fact. Lombroso, in his "Man of Genius," however, presents an overwhelming mass of facts to prove that men of genius descended from families rich in degenerates and insane, that many of them bore the physical stigmata of degeneration, were precocious, vain, egotistical, characterless, immoral, sexual perverts, alcoholics, drug habitués, and many of them actually insane.

There is abundant evidence to prove that many noted geniuses suffered from hallucinations and delusions. Socrates received messages from his familiar spirit or demon. Mahomet and Swedenborg saw visions and received messages from heaven. Brutus saw an apparition which said, "I am thy evil genius, thou shalt meet me at Philippi." Descartes, after a long retirement, was followed by an invisible person who urged him to pursue his investigations after truth. Martin Luther, while laboring under extreme religious excitement, saw the devil and threw an inkstand at his head. Savonarola, one day while talking to a nun, saw the heavens opened, and saw a vision of the calamities of the church and heard a voice telling him to proclaim them to the people. When Columbus was cast upon the shores of Jamaica, he heard a voice reproaching him for his discouragement and lack of faith in God. Bunyan, on Elston Green, heard a voice which "made him pause, and bade him sin no more." Hobbs confessed that he could not go in the dark without thinking he saw visions of the dead.[14] Samuel John-

[14] Life, W. Irwing.

son heard his mother's voice calling him when she was many miles distant.[15] Oliver Cromwell saw an apparition which appeared to him in the night and told him he would be the greatest man in England. Byron was haunted by a specter. Shelley had hallucinations of sight, but whether these were due to laudanum it is impossible to say, Anna Lee, the founder of the Shakers, saw Christ and received messages from Him. When Flaubert described the poisoning of Madam Bovary, he tasted the arsenic on his tongue, and showed symptoms of arsenical poisoning, even to the point of emesis. James Thomson, in his "City of Dreadful Night," described his hallucinatory experiences. Dickens was one day discovered in tears. On being asked the cause of his grief, he replied, "Little Nell is dead."

While the theory that genius is allied to insanity has found many advocates, it has on the other hand many opponents. There is a strong sentimental reason for objecting to the association of that which is most noble and sublime in the mind of man with that state which is considered the saddest, most pathetic, and even disgraceful. Joly[16] states that "It is not necessary to refute the theory of genius and insanity, for strength is not weakness, health is not disease; and for the rest, the cases quoted in favor of these hypotheses are only particular cases."

Moreau de Tours[17] classifies genius as a neurosis, and sums up his conclusions by saying that genius is the highest expression, the *ne plus ultra*, of intellectual activity, which is due to the overexcitation of the nervous system, and in this sense is neurotic. Schilling,[18] Hagen[19] and Jurgen-Meyer[20] have argued along the same lines. Lombroso[21] classes as paranoiacs all the great religious and political reformers of the world, Christ, Francis of Assisi, Luther, Savonarola, Cola di Rienzi, Lazaretti and others, and as epileptics Mahomet, St. Paul, Cæsar, Napoleon, Flaubert, Charles V, Paganini, Mozart, Schiller and numerous other famous characters.

[15] Life, Lord Macaulay.
[16] Psychologie du Genie, 1883.
[17] Psychologie Morbide, 1859.
[18] Psychiatrische Briefe, 1863.
[19] Verwandtschaft des genies mit dem Irrsinn, Berlin, 1877.
[20] Genie und Talent, 1879.
[21] The Man of Genius, Lombroso.

Grasset [22] is inclined to be more kindly disposed toward the genius, and classes him as semi-insane. He says, "The insane man is never anything but diseased, harmful, or at least useless to society. The semi-insane man is often eminently useful, sometimes even superman."

In attempting to study the subject at close range, that is, in regard to individual cases, we find that the literary genius offers the best opportunity for study. The letters, poems and other productions of the authors themselves show the nature of their symptoms. In fact, in many instances the literary productions were clearly defined symptoms of insanity. While many writers have admitted that geniuses have very frequently shown signs of degeneracy, they have refused to believe that there was any connection between the two, that is, they believe that the insanity is simply an incident in the life of the genius. On the other hand, the study of the life and works of literary genius would indicate that the literature was incidental to the psychosis, and simply formed an outlet for the abnormal feelings and passions of the writer, and accessory circumstances in many cases determined whether a mind, in its excited state, produced lasting results of a high order or wasted its energy in fruitless activity. Lombroso says, "The examination of the productions of the insane writers supplies us with a new source of analysis and criticism for the study of genius in literature. They show us that literary madness is not only a curious psychiatric singularity, but a special form of insanity which hides impulses more dangerous because not easily perceived." He states that poetry is the chief production of the insane writers, and theology and prophecy predominate in the writings of the mattoids. Of the forty-five insane writers referred to by Philmonests fifteen devoted themselves to poetry, twelve to theology, five to prophecy, three to autobiography, three to mathematics, two to psychiatry and two to politics. Moreau de Tours [23] wrote, "The state of inspiration, be it poetic, be it prophetic, is precisely that what offers the closest analogy to real insanity. Here genius and insanity are nearly synonymous, because of approaching and confounding each other. Taken out of itself, the mind seems in the presence of intellectual

[22] Semi-Insane and Semi-Responsible.
[23] Psychologie Morbide, 1859.

phenomena in which reason has no part. The substratum of genius is a semi-morbid state of the brain, a veritable erethism." Byron said, " Poetry is the expression of passion under excitement, and grows in vigor and effectiveness as the excitement increases."

A study of the life and works of literary geniuses would indicate that the psychosis most common among this class of individuals is manic-depressive insanity. In patients suffering from this form of mental trouble we are usually able to elicit a family history of some form of degeneracy. We see in the patient emotional instability —excitements with exaltation, exaggerated ego, expansiveness, hyperactivity, verbosity, graphomania with a tendency to make a play upon words, rhyming, punning, etc., fleeting delusions and occasionally hallucinations, alternating with periods of emotional depression, retardation, inhibition of thought and activity, delusions of self-unworthiness and often persecution. In addition we see moral weakness, aboulias, abnormal sensibilities, peculiarities of dress and action.

In a study of a few of the English and American authors of note we find practically the same manifestations. Byron's maternal grandmother suffered from melancholia, and took her own life. Another relative took poison. His mother was eccentric. His father, who was known as " mad Jack Byron," committed suicide. Charles Lamb's father and sister were insane; his mother suffered from paralysis. Dorothy Wordsworth, the sister of the poet, died insane, his daughter Catherine suffered from epilepsy, and another daughter is said to have been insane at times. De Quincey's father died of tuberculosis, his sister of hydrocephalus, and a son of " some obscure brain trouble." The father of Thomas Chatterton was a chronic alcoholic. Pope's mother suffered from senile dementia. Johnson, in writing of Pope, says, " He inherited headaches from his mother, and a crooked figure from his father." He was so small of stature that his seat at the table had to be raised to bring him on a level with the others. Dean Swift's uncle died insane. Samuel Johnson's father is described by Murphy as being " afflicted with a degree of melancholy little short of madness—violent passions, wrong-headed, positive." James Thomson's father suffered from paralysis, his mother from melancholia. Gray's father was a worthless scoundrel. Cowper inherited insanity from both sides of his ancestry. Shelley's grandfather suffered

from melancholia, and his father had tendencies in the same direction. Hartley Coleridge, the eldest son of Samuel Taylor Coleridge, bore the hereditary burden of a father addicted to opium, and at times insane. He was an eight-months baby, and was of abnormally small stature, his height being less than five feet. Southey had a maternal uncle who is described as an "idiot." His mother suffered from paralysis in infancy. Sir Walter Scott had a maternal uncle who was insane; his father suffered from organic dementia, his mother from aphasia and post-apoplectic dementia; one daughter died of "brain fever," another of tuberculosis. Edgar Allan Poe had alcoholic parents, an insane uncle, an imbecile sister and an alcoholic brother. Samuel Clemens' (Mark Twain's) daughter suffered from epilepsy.

Undoubtedly the sphere in which literary geniuses have shown the most pathological manifestations is that of the emotions. In their productions we see evidences of all degrees of elation, from mild hypomania to maniacal frenzy, and all grades of depression from slight melancholia to the blackest despair which ends in suicide. Mobius [24] has shown that the writings of Goethe are analogous to the productions of a manic-depressive. Hahn,[25] in an article on the psychopathology of Goethe comes to a similar conclusion. Goethe himself confessed, "My character passes from extreme joy to extreme melancholy." He also stated that a certain amount of cerebral irritation was necessary to the composition of a poem. Alfiere said that during the progress of his literary work his brain was in a condition of abnormal excitement, and he adds, "This excitement has all the characteristics of a mild mania." He also suffered from depressions so profound that at one time he tried to tear the bandages from his wrist, after being bled by a surgeon, in order that he might bleed to death.

Lombroso mentions writers who have claimed to have known patients who, in their normal condition, displayed no evidences of genius or talent, but who, under the influence of an attack of maniacal excitement, became great poets, linguists, musicians, artists and mathematicians. While this is not the experience of the ordinary psychiatrist, there is not one who has not seen patients who

[24] Ueber das Pathologische bei Goethe, Mobius, 1898.
[25] Chronique Medicale, 1904, pp, 321-358.

were bright, witty and interesting talkers and keen observers while in a hypomanic state, but who on their return to normal, were dull, uninteresting and unobserving. The brain, quickened by its abnormal state of excitement, seizes upon facts that in the normal condition are overlooked, the creative power is stimulated, the imagination unhampered. The overexcitation of the nervous system which in the ordinary case of manic-depressive insanity manifests itself by fruitless activities and profitless graphomania, in the genius, who is of a higher order of intelligence, finds an outlet in poetry and fiction.

After a prolonged period of excitement and overwork, nature finally calls into play its inevitable law of compensation, and takes revenge for this reckless expenditure of force by a period, equally prolonged, of mutism, retardation and inhibition of thought and action. We see an individual change in a day from a state of mania or hypomania to one of deepest depression. This is exactly what we find in the works of the literary genius. It has been said, "Melancholy is the crown of thorns of genius." Lucretius, a writer of Latin verse, suffered from periodic attacks of depression, in one of which he died by his own hand. Rousseau had alternating periods of mania and melancholia, and during the latter entertained the most distressing delusions of persecutions. Madame Dudevant (George Sand), at the age of seventeen, suffered from a depression during which she attempted suicide. Describing this attack she says, "The temptation was so sudden and bizarre that I considered it a species of insanity." Schiller passed through a period of melancholy which caused him to be suspected of insanity. Lessman, the humorist who wrote the "Journal of Melancholia," hanged himself during an attack of depression. Tasso, in a letter to Urbino, exclaimed, "Francesco, O, Francesco! With my infirm limbs I have an infirm soul. So great is my grief that I am considered by others and myself as mad." Newton suffered from depressions so severe that his friends considered him insane at times. Samuel Johnson,[26] who compiled the first English dictionary, described his own condition as follows: "My indolence has sunk into a deeper sluggishness. A kind of strange oblivion has overspread me so that I know not what has become of the

[26] Life, Lord Macaulay.

last year. My memory grows confused, and I know not how the days pass over me." His new edition of Shakespeare appeared after a delay of nine years, due to these recurrent depressions. Thomas Chatterton[27] was afflicted with fits of depression during which he would remain speechless for days. He committed suicide at the age of seventeen, leaving behind a large collection of poems and articles. At the time of his death he was a contributor to almost every magazine published in London. Hartley Coleridge described his depressions in several of his poems. He compared these attacks to black clouds which overspread his horizon and obscured his mental faculties. James Thomson[28] is said to have suffered from "insomnia, congenital melancholia and fits of intemperance." In his Requiem, which he wrote some time prior to his death, he refers to his life as one of pain, woe, grief and fear. Henry Clarence Kendall, the Australian poet, was at one time confined in a hospital for the insane. In some of his poems he refers to it as "the shadow of 1872." John Stuart Mill was insane for several months at the age of twenty. This was a depression of the most profound type. Maltbie D. Babcock, the New York preacher and poet, had an attack of "nervous prostration," and was a patient in a sanitarium for four weeks. He finally took his life while suffering from an attack of Mediterranean fever. Adam Lindsay Gordon, an Australian poet, shot himself during a depression which occurred at the time he had reached the height of his popularity. Mrs. J. S. McCullough (Myrtle Reed), committed suicide by taking poison.

The moral weakness and lack of will-power of literary geniuses has often been remarked upon. Among noted authors we find that Shelley, Madame de Staël, De Quincey, Coleridge and Francis Thomson used opium. James Mangan, the Irish poet, used alcohol and opium. He died at the age of forty-six from the effects of debauchery. Hartley Coleridge died from the effects of prolonged alcoholic indulgence. Ernest Dowson, the English poet, became insane from the constant use of alcohol and haschish. Henry Clarence Kendall indulged in prolonged alcoholic debauches. James Thomson was a drunkard and a drug habitué. Byron, Burns and Poe were addicted to the excessive use of alcohol.

[27] Life, Chas. Edward Russell. [28] Saturday Review, Feb. 16, 1895.

Numerous attempts have been made to account for these weaknesses. R. R. Madden [29] has attempted to show that the peculiarities of genius are due to dyspepsia, Dr. George M. Gould [30] that they are the result of eye strain. James Sully [31] ascribes them to the delicate nervous organization of the genius which makes him more susceptible to external stimuli. He believes that the fact that the most strenuous efforts of genius are often met with indifference or ridicule induces a pathological state of mind. He admits that his study of genius has familiarized him with striking illustrations of moral weakness. Baudelair, who himself was insane at times, ascribed it to heredity. He says, " Are there, then, sacred souls devoted to the altar, condemned to march to death and glory across their own ruin? Exists then a diabolical providence which prepares their unhappiness from the cradle? The reply is not doubtful. Science gives it; it is heredity. It is heredity that in literary history, as well as elsewhere, pronounces true damnation, which imprints in the sinuous folds of certain foreheads, too narrow or too high, that strange mysterious tattooing."

To the psychiatrist the explanation of the moral weakness and lack of will-power in the genius is patent. It is simply a symptom of the psychosis from which he suffers. In the case of so many noted writers who were dypsomaniacs or narcomaniacs, their psychosis was attributed by their biographers to their habits, instead of recognizing the fact that their evil habits were simply a manifestation of their abnormal mental state. In the case of many authors the over-indulgence in alcohol and drugs was simply an effort to escape from the brooding horror of mental depression, which overwhelmed them from time to time, inhibiting their thought processes, clogging their imagination, and paralyzing their activities. In the hand to hand struggle with poverty, in which most of these men were engaged, this was a serious matter, and they were driven to unwise and often desperate means of overcoming this depression. De Quincey stated that during his nervous excitement opium steadied and concentrated his thoughts, and during his depression it stimulated him to action. He once wrote,

[29] The Infirmities of Genius, Madden.
[30] Biographical Clinics, Gould, 1903-1909.
[31] Genius and Insanity, Sully, Popular Science Monthly, Aug., 1885.

"Without opium I can't get on with my work, which the publishers are urging me to complete. The work *must* be done, the opium can't be left off."[32] Poe said, "I have absolutely no pleasure in the stimulants in which I sometimes so madly indulge. It has not been in the pursuit of pleasure that I have periled life, reputation and reason, but in a desperate attempt to escape from torturing memories of wrongs, injustice and implied dishonor, and from a sense of intolerable loneliness and a dread of some strange impending doom."[33] Robert Burns made similar statements.

In addition to the emotional instability and moral weakness of noted writers, we find in the works of many of them distinct evidences of hallucinations and delusions. These, although variously designated as inspirations, visions and revelations, cannot be clearly differentiated from the fallacious sense perceptions and delusions of the insane. Several authors have, in their writings, given detailed accounts of their mental processes while insane. A full description of the insanity of Rousseau is contained in his works, "Confessions," "Dialogues" and "Reveries." Hoffman describes his psychoses in "Kreisler," and Musset gives his experiences while insane in "Confessions."

While manic-depressive insanity appears to have been the predominating psychosis among English and American writers, we find evidences of other abnormal mental conditions existing among them. Charles Darwin, according to Hahn,[34] was a neurasthenic. Samuel Johnson was an incurable hypochondriac. He would set his heart on touching every post in the street, and if by any chance he missed a post he would go back a hundred yards to cure the omission.[35] Whittier, says Lombroso, was a neurasthenic. Huxley was a hypochondriac. He complained all his life of dyspepsia, "obstruction of the liver, heart trouble," etc. He took large doses of quinine and strychnine, notwithstanding physicians could find no evidence of organic disease. While he supposed himself to be suffering from grave cardiac disease, he could climb two thousand feet without difficulty. Voltaire labored under the delusion that

[32] De Quincey and his Friends, Hogg.
[33] Memoir, Ingram.
[34] The Neurasthenia of Charles Darwin, Chronique Medicale, 1901.
[35] Life, Lord Macaulay.

he was suffering from some insidious disease while he was in perfect health.[36] Southey became demented at the age of sixty-six. Sir Walter Scott had an attack of acute anterior poliomyelitis in infancy, which left him lame for life. He suffered from senile dementia prior to his death. Thomas Carlyle was a neurasthenic. He complained constantly in his letters of "dyspepsia, nervousness, hypochondria," and was always anxious for sympathy and commiseration. At twenty-seven he could sleep only with his fingers in his ears. He consulted physician after physician, who, after the manner of their time, dosed him with large quantities of drugs. He described his condition at the age of thirty-one as "sick with sleeplessness, nervous, bilious, splenetic," and adds, "It is strange how one gets habituated to sickness. None can say how bilious I am or am like to be." Again he writes, "I shall never be other than ill, wearied, sick-hearted, bilious, heartless and forlorn—sick, sleepless, driven half-mad. I am sure to be sick everywhere." Despite Carlyle's lifelong habit of complaining, self-commiseration and drug-taking, he lived to the advanced age of eighty-five, and the physicians who attended him during the last years of his life could find no evidences of organic disease. Froude states, "In spite of his imagined ill-health he was impervious to cold and his health was essentially robust." Lord Byron's lack of natural affection, exaggerated ego, absence of moral sense, of which he was extremely proud, emotional instability, together with physical stigmata of degeneration, would stamp him as a psychopath and a degenerate. He was at one time interviewed by a physician and a lawyer with a view to determining his sanity. The autopsy findings in his case would indicate that his death, which occurred at the age of thirty-seven, was due to meminoencephalitis, which was probably specific in origin. The cases of manic-depressive insanity among noted writers are very numerous.

Thomas De Quincey[37] probably offers one of the most striking pictures. De Quincey's efforts to support a wife and large family by his literary productions were foiled and frustrated by the sudden appearances of the most intense mental depressions, accompanied by feelings of hopeless inadequacy, retardation and inhibition.

[36] Man of Genius, Lombroso.

[37] De Quincey and his Friends, James Hogg, 1895, Thomas De Quincey, H. A. Page.

De Quincey's mental peculiarities were manifested early in life. Gen. W. C. B. Eatwell, M. D., in his medical review of the life of De Quincey, indicates that he suffered from some nervous trouble during his second and third year. He also states that at the age of six De Quincey suffered from "cataleptic epilepsy." While standing by the casket of his deceased sister he had a vision, in which hallucinations of sight and hearing were present. Immediately following this he passed into a depression, during which he showed a tendency to seclude himself from his family. De Quincey, speaking of this period later, says, "Under the influence of rapacious grief that grasped at what it could not obtain, the faculty of shaping images in the distance out of slight elements, and grouping them after the yearnings of the heart, grew upon me with morbid excess."

At twelve he is supposed to have suffered from an injury to the head, which was followed by mental symptoms. Spencer, however, states that he believed the injury was purely imaginary, and gave his opinion that De Quincey's trouble arose from irritation in his too active and susceptible brain. Like others of his class, De Quincey was precocious.

At sixteen he suffered from a pathological depression. In a letter to his mother he describes himself as being weary, torpid and languid, and expresses a wish to die. At seventeen he probably suffered from a mild excitement. He ran away from boarding school, and for months wandered aimlessly among the solitary hills of Wales, with no object in view except to alleviate his restlessness. About this time, also, he suffered from a nervous affection. He says, "A hideous sensation began to haunt me as soon as I fell into slumber, which has since returned upon me at different periods of my life—a sort of twitching, which compelled me to throw out my feet violently for the sake of relieving it. This sensation coming on as soon as I commenced to sleep, and the effort to relieve it constantly awaking me, at length I slept from exhaustion, and through increasing weakness I was constantly falling asleep and constantly waking."

Following his wanderings in Wales he went to London, where he was again overtaken by a depression. He spent his days sitting idly in the parks, and his nights sleeping on the floor of a hovel with a bundle of papers under his head and covered by an old rug. Once he fainted in the street from exhaustion and hunger. He entered Oxford at the age of eighteen. Shortly after his admission to that institution he again became depressed. Page says, "His exceptional life in London, and the sufferings he had undergone, induced some morbid disinclination to associate with others, and he was in no little danger of subsiding into a helpless, brooding apathy."

About this time he began to take opium for neuralgia, and the drug appears to have had a magical effect upon his disordered mind. Here," he exclaims, "is a panacea for all human woes. Here is the secret of happiness about which philosophers have disputed, at once discovered." From that time until his death he was an occasional devotee of the drug.

Although De Quincey remained at Oxford five years, he never received a degree. At the first part of the final examination, which was written, he

acquitted himself with such credit that one examiner, writing to another member of the faculty, said, "You have sent us the cleverest man I ever met. If his *viva voce* examination to-morrow corresponds with what he has done to-day, he will carry everything before him." That night De Quincey disappeared from Oxford never to return. The stress and strain of the approaching oral examination probably precipitated a depression.

At twenty-seven he suffered from what he describes as an "attack of nervous horror which lasted five months, and which went off in a night as unaccountably as it had come on, in a second of time." At twenty-eight he had a depression lasting three months, following the death of little Kate Wordsworth. He said he abandoned himself to a frenzy of grief, and often spent the night on her grave. The child appeared to him daily during this time. This attack also ended suddenly.

The depressions and excitements from which De Quincey suffered seriously interfered with any continuous effort of any sort. Although he had spent his entire time in writing and studying, at the age of thirty he had not published a single line. His literary productions, written on scraps of paper, were circulated far and wide, but he invariably stated that they were not ready for the press. Later, when he became a regular contributor to various publications, the publishers were driven to distraction by his tendency to begin what he was unable to finish. Mr. Hogg, with whom he was associated in his literary work, wrote, "I soon found it was of no use to show impatience, that the cause of his delays were for the most part beyond his control." His conduct of his financial affairs is described by Page as "bordering on absolute imbecility, and only by means of a small annuity derived from legacies was his family saved from abject poverty."

De Quincey had good insight into his condition, and his letters give clear descriptions of typical manic-depressive depressions. He writes, "I suffer from a most afflicting derangement of the nervous system, which at times makes it difficult for me to write at all." "A nervous malady of a very peculiar character which has attacked me intermittently for the last eleven years." "My power to make sustained effort dropped in a way I could not control, insomuch that with parts to be cancelled, and with whole days of torpor and pure defect of power to produce anything at all, very often it turned out that all my labors were barely sufficient (sometimes not sufficient) to meet the current expenses of my residence in London." "O, my God! what miseries I have been born to endure, what tortures am I yet to suffer!" "Sleep and waking became alike in the prevailing sense of sunless gloom, and boundless abysses, out of which there seemed no hope of rising, while space and time alike became boundless, infinite. At length I grew afraid to sleep, and I shrunk from it as from savage torture. Often I fought with my own drowsiness, and kept it aloof by sitting up the whole night and the following day. I sometimes seemed to have lived seventy or a hundred years in one night. In the earlier stage of my malady the splendor of my dreams was chiefly architectural, and I beheld such pomp

of cities and palaces as were never yet beheld by the waking eye unless in the clouds. But now came a tremendous change. Hitherto the human face mixed often in my dreams, but not despotically, nor with any special power of tormenting. Now the tyranny of the human face began to unfold itself. The sea seemed to be paved with innumerable faces, imploring, wrathful, despairing, surged up by thousands, by myriads, by generations." "No purpose could be answered by my vainly trying to make intelligible for my daughters what I cannot make for myself—the indescribable horror that night and day broods over my nervous system."

Describing his feelings of inadequacy, retardation and inhibition, he wrote, "There it is that I recognize the mind affected by my morbid condition—infinite incoherence, ropes of sand, gloomy incapacity of vital pervasion by some one plastic principle, that is the hideous incubus upon my mind always." His "Confessions of an Opium Eater" were written during a period of hypomania, hastily and without correction or revision. It happened that at the time he undertook to revise the work he was seized by a depression. Writing to his publisher he says, "A nervous malady which has attacked me intermittently for the last eleven years came on May 1st, almost concurrently with the commencement of this revision, and so obstinately has the malady pursued its noiseless, and what I may call its subterranean siege, that, although dedicating myself to this solitary labor, I have yet spent, within a few days, six calendar months upon the recast of one volume."

In each case De Quincey appears to have recovered from his depressions suddenly. Describing his recoveries he says, "I recovered in a moment, in the twinkling of an eye, such a rectification of the compass as I had not known for years." On another occasion, "Instantaneously, as if by magic, the cloud of profoundest melancholy which rested on my brain drew off, and once again I was happy, and my brain performed its functions as healthily as ever."

Of the excitements of De Quincey we have little account. Dr. Eatwell says there were times when his entire nervous system was in a state of exaltation. De Quincey at times complained that the electrical rapidity and rush of his thoughts was such that only one word out of fifty could be retained and written down. Page describes his flight of ideas very aptly, "His talk is like a stream which runs with rapid change from rocks to roses. It slips from politics to puns. It glides from Mahomet to Moses, beginning with the laws which keep the planets in their radiant courses, and ending with some precept deep for dressing eels or shoeing horses." His restlessness was so great at times that he could only control it by vigorous exercise. It is recorded that in ninety days he walked one thousand miles.

In addition to the symptoms of manic-depressive insanity already enumerated, De Quincey showed evidences of peculiarities of dress, and a tendency to collect useless articles. Hogg states that he often came into the parlor with shoes but no stockings, or stockings but no shoes. His appearance was at times so disreputable that on one occasion when he called on a minister who was out at the time he called the housekeeper refused him admittance

to the house, but allowed him to sit on the porch and write a note to the minister. One can imagine the mortification of the latter when he returned and found a note signed by De Quincey.

The newspapers and periodicals which reached him from all parts of the world he preserved with religious care. Even his MSS. which had appeared in print he preserved. Hogg states, "He clung to his gatherings with a childlike pertinacity. Nay, he was wont to drag such heaps from place to place with him, whereby arose some of the oddest accidents on record." On one occasion when in Glasgow he filled two tea chests with papers. These he left in the care of a bookseller to be sent for later. He omitted to note the name and address of the shop, and was never able to find the place. His daughters laughed at their own imprudence in putting a bath tub in his room. This he immediately used as a receptacle for literary matter. His large library was so scattered, and so hopelessly mixed with the debris which surrounded him, that it was practically worthless. He wasted his time and energy searching for articles which he had mislaid, and he stated that some of his most effective articles were entirely lost.

Biographers have been unanimous in the opinion that De Quincey's abnormal mental condition was due entirely to his excessive use of opium. On the contrary, the addiction to opium was the effect rather than the cause of his psychosis, inasmuch as the latter preceded the former many years. In a letter to a friend, after a graphic description of a depression, De Quincey says, "You will naturally ask if there is any key to the original cause. Sincerely I do not believe there is. One inevitable suggestion at first arose to everybody consulted, namely, that it might be some horrid recoil from the long habit of using opium to excess. But this seems improbable for more reasons than one: 1st, because previously to any considerable use of opium, namely in 1812, I suffered from an unaccountable attack of nervous horror which lasted for five months, and went off in one night." During his depressions he was able to perform his duties only by the aid of laudanum, a bottle of which sat constantly on his desk. He described its effects as follows, "It purifies the moral affection, elevates the imagination, and gives a larger scope to it, a power to recreate experiences and phantasies of infancy already becoming dim. Opium introduces into the faculties the most exquisite order, regulation and harmony." How much De Quincey's psychosis was colored by opium it is impossible to say, but it was probably responsible to some extent for the hallucinations and delusions so graphically described in his "Confessions of an Opium Eater."

Jonathan Swift.—The psychosis of Swift, known as "the mad parson," has been the subject of much controversy. At the beginning of the nineteenth century Dr. Beddoes[38] described it as "homogeneous and progressive," and assigned as its cause specific disease. Sir Walter Scott[39] indignantly denied this assertion, and took occasion to reprimand Dr.

[38] Hygeia Essay IX., Beddoes.
[39] Life, Scott.

Beddoes severely for casting reflections upon the character of the Dean. He brought forward no facts to refute the assertion, however, and threw no further light on the subject. In 1846 Sir Wm. Wilde[40] reinvestigated the case. He claimed to have discovered from a plaster cast, taken from the face of Swift after death, that the Dean suffered from a stroke of paralysis. He claimed that there was no proof that Swift had ever been insane, and stated that his peculiarities in later life were due to the ordinary decay of nature. The condition of complete dementia into which Swift sank before his death he attributed to paralysis of the muscles of speech, and the loss of memory to a subarachnoid effusion. Dr. Bucknell[41] next attempted to solve the problem, and ascribed the almost lifelong malady of Swift to "labyrinthian vertigo," or Menier's disease, on which was engrafted dementia with hemiplegia and aphasia, the result of disease of the brain, "probably the third frontal convolution."

The study of the writings, life history and autopsy report of Dean Swift would point to a diagnosis of manic-depressive insanity, on which was engrafted arterio-sclerotic dementia. His psychosis seems to have made its appearance at the age of twenty-three, when he was attacked by dizziness, ringing in the ears and extreme depression. These depressions appeared periodically throughout the remainder of his life, and gradually became more frequent and of longer duration. Collins[42] described his condition at twenty-five as follows: "The more indulgence he received, the more exacting and querulous he became; the brighter appeared the prospect without, the blacker grew the gloom within. No kindness availed to either soothe or cheer him. The first symptoms, or what he believed to be the first symptoms of that mysterious malady which pursued him through life, and which, after making existence a misery to him, was to bring him under circumstances of unspeakable degradation to the tomb, had already revealed themselves."

For many years his depressions were so mild as to call for little notice by his biographers, but they refer to them from time to time. His writings would indicate that a state of hypomania existed a greater portion of the time. The literature which he produced at these times is described as the most diabolical ever produced by the human mind. His satires, his unsparing criticism and sarcasm, made him known and feared throughout England. He respected neither age, sex nor rank. Taine[43] says, "If ever a soul was satiated with the joy of tearing, outraging and destroying, it was his. He dragged poetry not only through the mud but into filth. He rolled in it like a raging madman, and enthroned himself in it, and bespattered all passers-by."

Many of his writings could only be the productions of an insane mind. For instance, in a pamphlet entitled "A modest proposal for preventing the

[40] Dublin Quarterly Journal of Medical Science.
[41] Brain, Jan., 1882.
[42] Life, Churton Collins.
[43] English Literature, Vol. II.

children of the poor of Ireland from being a burden to their parents," he suggests that these children be fattened, sold to the wealthy, killed, their bodies used for food, and their skins for gloves and shoes. He dilates in the most horrible manner on the age at which they would be most palatable, the best manner of cooking, and the relative weights and values at different ages. Sir Walter Scott,[44] in speaking of Swift's writings, says, "A large portion of his works exhibited in an intense activity all the worst attributes of human nature, revenge, spite, malignity, uncleanness."

A depression of unusual severity occurred at the age of forty-seven. The combined effect of his political downfall, death of friends, ill health and unpopularity was probably responsible for this. Collins says, speaking of this period, "The fierce and gloomy passions which prosperous activity had for a long while composed, again awoke and he became a prey to that constitutional melancholy which had been his bane since childhood."

Between the ages of sixty-one and seventy-one alternating periods of excitement and depression followed each other in rapid succession. Collins says, "When he was not under the spell of dull, dumb misery, he was on the rack of furious passion." These ten years were, in a literary way, the most prolific of his life. A great number of his productions were not worth publishing, but some of his best poems were composed during this period. His writings show the workings of a mind perpetually oscillating between unutterable despair and demoniacal rage. In both states he relieved his mind by constant writing.

At the age of seventy-three his memory is recorded as failing. As arterio-sclerotic changes advanced, his irritability and ferocity increased, he became violent and had to be secluded in a room, where he is reported as pacing the floor night and day like a caged animal. The final picture is one of complete dementia, with hemiplegia and aphasia. The autopsy showed cerebral shrinkage and arterio-sclerosis.

John Keats.[45]—In the brief and tragic career of the poet Keats the evidences of pathological depressions and excitements can be gathered from a large number of letters written to his numerous friends and carefully preserved by them. That he suffered from these depressions as a boy is attested by his brother, George Keats, who, in writing of the poet, says, "From the time we were boys at school until we separated, I in a great measure relieved him by constant sympathy, explanation and inexhaustible spirits and good humor from many a bitter fit of hypochondriasm. He avoided teasing anyone with his miseries but Tom and myself."

Like others of his class, Keats was a precocious boy. He was an omnivorous reader, and according to Charles Cowden Clark he won all the literary prizes in the schools he attended. Between the ages of fifteen and twenty he studied medicine and surgery, but to one of his dreamy, imaginative disposition the practical art of medicine did not appeal. He said

[44] Life, Scott.

[45] Keats' Complete Poetical Works and Letters, edited by Horace E. Scudder, 1899.

to a friend, "The other day during a lecture there came a sunbeam into the room, and with it a whole troop of creatures floating in the ray, and I was off with them to fairyland." At twenty be abandoned the practice of medicine, and from that time until his death he devoted himself to literature.

Keats is described by Scudder as being a prey to "moods of depression." The only poem written by him which gives any hint of his abnormal state of mind was composed at the age of twenty-four, before he was stricken with the "white plague," which was the cause of his untimely end. This poem is entitled "Why did I laugh to-night?" and shows the most intense depression, bordering on despair.

The letters of Keats give abundant evidence of depression, retardation, inhibition of thought and action, into which he had good insight. At the age of twenty-three he wrote to Benjamin Bailey, "I have this morning such a lethargy that I cannot write. The reason for my delay is oftentimes from this feeling. I wait for a proper temper. Now you ask for an immediate answer. I am so depressed that I have not an idea to put on paper; my hand feels like lead, and yet it is an unpleasant numbness. It does not take away the pain of existence. I don't know what to write." Three days later he made another attempt, and says "You see how I have delayed, and even now I have a confused idea of what I should be about. My intellect must be in a degenerate state—it must be, for when I should be writing about God knows what, I am troubling you with moods of my own mind, or rather body, for mind there is none. I am in a temper that if I were under water I would scarcely kick to come up to the top. In vain have I waited until Monday to have an interest in that or anything else. I feel no spur at my brother's going to America, and am almost stony-hearted about his wedding." When twenty-four years of age, he wrote to his sister, Fanny Keats, "I have thought of writing to you often, and I am sorry to confess that my neglect of it has been but a small instance of my idleness of late, which has been growing upon me so that it will require a great shake to get rid of it. I have written nothing, and almost read nothing." Writing to Lehigh Hunt he said, "I went to the Isle of Wight and thought so much about poetry, and so long together, that I could not get to sleep at night, and moreover, I know not how it was I could not get wholesome food. By this means in a week or so I became not over-capable in my upper stories. Another thing, I was too much in solitude, and consequently was obliged to be in continual burning of thought as an only recourse." Writing to Mr. Hayden he says, "You tell me never to despair! I wish it was as easy for me to observe the saying. Truth is, I have a horrid morbidity of temperament, which has shown itself at intervals. It is, I have no doubt, the greatest enemy and stumbling-block I have to fear." Writing to his publishers, explaining his delay in finishing some work, he says, "I hope now to be able to resume my work. I have endeavored to do so once or twice, but to no purpose. Instead of poetry I have a swimming in my head, and feel all the effects of a mental debauch, lowness of spirits, anxiety to go on without the power to do so, which does not at all tend to my ultimate progression. This evening I go

to Canterbury, having got tired of Margate. I was not right in my head when I came."

There is little evidence to show that Keats suffered from abnormal excitements, although it is hinted at in various letters, one of which states, "I think a little change has taken place in my intellect lately. I cannot bear to be uninterested or unemployed, I, who for so long a time have been addicted to passiveness." Writing to George Keats he says, "I shall send you more than letters, I mean a tale, which I must begin on account of the activity of my mind, of its inability to remain at rest. If I am not in action in mind or body I am in pain, and for that I suffer greatly by going into parties where, from the rules of society, and a natural pride, I am obliged to smother my spirit and look like an idiot; for I feel my impulses, given away to, would too much amaze them. I live under an everlasting restraint, never relieved except when I am composing, so I will write away."

Like so many other men of genius Keats was harassed by poverty. His sensitive nature was continually being wounded by harsh and adverse criticisms of his works, his mind was distracted by an unfortunate love affair, and finally tuberculosis, which he contracted from his brother, terminated his career at the age of twenty-six. At his own request the following words were engraved upon his tombstone:

"Here lies one whose name was writ in water."

Charles and Mary Lamb.[*]—Charles Lamb, who was of abnormally small stature, and stammered, bore the hereditary burden of an insane father, a sister who was afflicted with manic-depressive insanity and a mother who suffered from paralysis. It is interesting to note that Charles Lamb appears to have suffered only from depressions, while Mary had recurrent attacks of mania of the most violent type. At the age of thirty-one during one of these attacks, she murdered her mother and seriously wounded her father and her aunt. She had suffered from attacks prior to this one, but not of such a violent type. Following this she was placed in an asylum, and from that time until her death she had to be confined in an institution from time to time. In writing of his sister, Charles Lamb stated, "I consider her perpetually on the brink of madness, but when she is not violent her rambling chat is better to me than the sense and sanity of the world." Again and again he took her from the asylum, and as often returned her when her irritability and change of manner indicated that an attack of mania was approaching. Cornwall says, "It was very afflicting to encounter the young brother and his sister walking together (weeping together) on this painful errand, Mary herself, although sad, very conscious of the necessity for temporary separation from her only friend. They used to carry a straight-jacket with them." In the intervals between her attacks, Hazlett described her as the most rational and wisest woman whom he had ever known.

[*] Memoir, by Barry Cornwall, 1866.

Although Charles Lamb suffered from periods of depression all his life, only once was it considered necessary to restrain him in an asylum. Cornwall says, "Lamb's very curious and peculiar humor showed itself early. It was perhaps born of the solitude in which his childhood passed away, perhaps cherished by the seeds of madness that were in him, that were in his sister, that were in the ancestry from which he sprung." When he was twenty-one years of age his mother was killed in the tragic manner above described. While the coroner was holding an inquest over her body, Lamb was forced to sit and play cards with his insane father. After placing his sister in an asylum he passed into a depression which necessitated his treatment in the same institution with his sister. During this depression he burned all the poetry he had composed, all the extracts he had made and what he called "the journal of my foolish passion which I had long kept." In a letter to Coleridge he said "During my madness my mind ran on you almost as much as on another person, who was the most immediate cause of my frenzy." His "foolish passion" referred to is supposed to have been a love affair which terminated unhappily. This, in connection with his mother's death and sister's insanity, was a contributing, if not the causal, factor in his mental breakdown. During the remainder of his life his depressions never became so severe as to render it necessary for him to receive institutional care. Cornwall states that "his energy or mental power was indeed subject to fluctuations, no excessive merriment, but much depression." Lamb himself confessed, "My waking life has much of confusion, the trouble and obscure perplexity of an ill dream. In the daytime I stumble upon dead mountains." Stevenson[47] says, "His diluted insanity cast an enduring shadow over his life."

It is interesting to note that in the literary productions of the brother and sister Charles Lamb contributed largely to the pathos and Mary to the humor of their works. In their translations Charles translated the tragedy and Mary the comedy.

Samuel Taylor Coleridge.—In a recent article entitled "The psychopathy of Coleridge,"[48] Dr. DuPouy has shown that Coleridge, in addition to being an abnormal character, suffered from manic-depressive insanity, and his statements are confirmed by the writings and biographies of the poet.

Coleridge describes himself as a child, "Before I was eight years old I was a 'character'; sensibility, imagination, vanity, sloth, and a feeling of deep and bitter contempt for all who traversed the orbit of my understanding were even then prominent and manifest." "It is thus," he says, "that I became a dreamer and that I acquired a disposition opposed to all physical activity. I was capricious and passionate without measure,

[47] Genius and Mental Disease, Wm. G. Stevenson, Popular Science Monthly, Mar., 1877.

[48] Journal de Psychologie Normal et Pathologique, Mai-Juin, 1910.

I knew nothing of play and was indolent. I was despised and detested by all the boys."

When five or six years of age, having quarrelled with his brother, he stole away from home and spent a cold, rainy October night in the fields. Three times in later life he disappeared mysteriously under some morbid impulse. When eighteen years of age, while walking the streets of London, he fancied himself Leander swimming the Hellespont, and thrust out his arms while buffeting the waves. In doing so he caught the coat-tails of a gentleman who took him for a pickpocket.[48]

There is abundant evidence to show that Coleridge suffered from pathological depressions before he acquired the opium habit. At the age of twenty he wrote to Mrs. Evans, "You covet to be near my heart. Believe me that you and my sister have the very first row in the front box of my heart's theatre, and, God knows, you are not crowded. There, my dear spectators, you shall see what you shall see—farce, comedy, tragedy, my laughter, my cheerfulness, my melancholy."[49] Writing to Southey at the age of twenty-two he says, "I sit down to write to you, not that I have anything particular to say, but it is a relief, and forms a very respectable part in my theory of escapes from the folly of melancholy. I appear to myself like a sick physician, feeling the pang acutely, yet deriving a wonted pleasure from examining its progress and developing its cause."[50]

As time elapsed, his depressions became more and more severe. When he was twenty-four the failure of the "Watchman," in which he was interested, threw him into a depression so acute that he attempted self-destruction. It was at this time that he first had recourse to opium to alleviate his mental distress, sleeplessness and physical pain. This pain is described as neuralgic in character, but was, in all probability, that vague sense of pain so often complained of by patients during the depressed stage of manic-depressive insanity. Southey, writing of these pains, said, "Coleridge is now in bed with lumbago. Never was a poor fellow tormented with such pantomime complaints. His disorders are perpetually shifting, and he is never a week together without some one or other." Coleridge, in writing to a clergyman about this time, says, "I have been suspended on the border of insanity, and during the last fortnight I have been obliged to take opium every night."

At the age of twenty-eight an attack of still greater severity occurred. This was insidious in onset and slowly progressive. He was then engaged in the translation of Wallenstein's works, but all literary efforts had to be abandoned. He was struck by an intellectual sterility and utter hopelessness which made all work impossible. He described his state of mind as being one of drowsy, unimpassioned grief, which could find no outlet in word, sigh or tear.

His rheumatic pains, which seem to have recurred with the onset of each depression, again appeared, and once more he resorted to laudanum.

[48] Life, Hall Caine.

[50] Letters of Samuel Taylor Coleridge, Ernest Hartley Coleridge.

DuPouy says, "He was invaded by that which M. Aynard calls neurasthenia, and which we prefer to name melancholic depression." Coleridge complained that each one of these crises deprived him temporarily of the gift which nature made him at birth, namely, his creative imagination.

The next attack of which we have any record occurred at the age of thirty-one. Writing to a friend Coleridge says, "My spirits are dreadful, owing entirely to the horror of the nights—I truly dread to sleep. It is no shadow with me, but a substantial misery foot thick that makes me sit by my bedside of a morning and cry. I have abandoned all opiates except ether be one." (Then follows a poem giving further details of his lamentable condition.) "I do not know how I came to scribble down these verses to you; my heart was aching and my head all confused, but they are, doggerel as they may be, a true picture of my nights. What to do I am at a loss, for it is hard to be withered, having the faculties and attainments which I have. O, dear, dear Southey, my head is sadly confused." When thirty-four years of age he claimed to have had a stroke of paralysis in his right arm and hand, but as biographers make no mention of this, it was probably the result of his disordered sensations and imagination.

In connection with the emotional depression evidenced in these attacks to which Coleridge was subject, we see evidences of the typical retardation, feeling of inadequacy, hesitancy and helpless indecision of the manic-depressive. Writing to his brother at the age of twenty he says, "There is a vice of such powerful venom that a drop of it will poison the overflowing goblet of a thousand virtues. This vice constitution seems to have implanted in me, and habit has made it almost omnipotent. It is Indolence. Anxieties that stimulate others infuse an additional narcotic into my mind. Like some poor laborer whose night's sleep has but imperfectly refreshed his weary frame, I have sat in a drowsy indifference, and, doing nothing, have thought what a deal I had to do." At times his inhibition and retardation were so great that he was unable to open and read the letters he received from his wife. At thirty-eight he came to the following conclusion, "My case is a species of madness only that it is a derangement, an utter impotence of the volition, and not of the intellectual faculties. This is, perhaps, in part a constitutional idiosyncrasy." For a year he lived abroad and communicated with no one in England, not even his wife and family. On his return Wordsworth described his condition,

> "Ah! piteous sight it was to see the man
> When he came back to us a withered flower,
> Or like a sinful creature pale and wan
> Down would he sit, and without strength or power
> Look at the common grass from hour to hour."

These attacks of depression alternated with periods of hypomania, and during these excitements, modified by opium, he composed poems of unquestionable literary value. Kubla Khan is a genuine "pipe dream," and was composed during a profound sleep induced by opium. After writing forty-five lines of it he was interrupted by a visitor, and he never

could recall the remainder of the poem. His excitement became so great at times that he is said to have run around in his home in a nude condition, in a frenzied state. While in a state of hypomania he was an interesting and incessant talker. Southey said, "He talked forever, and you wished to have him talk forever." Lang[51] says, "He always gave more promises than he could fulfil, but who could fulfil the promises of Coleridge." Sir Humphry Davy says, "His eloquence is diminished in—nothing, perhaps even become more seducive. His will is probably more disproportionate, but never with his faculties. Brilliant images float on his spirit, agitated by all the bruises and modified by all the rainbows. Within an hour he speaks of beginning three works, and recited the poem Christabel, unfinished, as I have already heard it."

Coleridge was egotistical, fault-finding, and restless at all times. He found it almost impossible to remain friends with anyone, even members of his own family. As a consequence of his fluctuations of mental activity we see all sorts of irregularities. Tasks commenced were never completed. Christabel, Kubla Khan, as well as seventy-five per cent of his other poems, were never finished. He was once offered thirty guineas for a poem he had improvised, but despite his dire need of money he was never able to get it on paper. Gigantic projects were formed but never executed. Harassed by poverty he tried one occupation after another by which to earn a living, but was equally unsuccessful in each. Speaking of his irregularities of conduct DuPouy says, "That conscious and anguished mental anarchy seems to us to have been related more to the psychosis that had pursued his entire existence than to the opium, of which the arrival is secondary to the appearance of the first periodic attacks and their mental fluctuations. We do not intend in the meantime to deny the fatal rôle that it played in the physical and mental health of Coleridge, as much by its own medium as by the exacerbation of the psychic troubles—manic-depressive."

William Cowper.—In the case of the poet Cowper, to establish a diagnosis of manic-depressive insanity is not difficult. The early age at which his psychosis made its appearance is unusual. Wright[52] states that at the age of eleven he was "struck with a lowness of spirits uncommon at his age. At the same time he was troubled with the hallucination that he was consumptive and consequently fated to an early death." He further adds that Cowper's affliction was inherited melancholia. The first attack which was recognized by his friends as being insanity occurred at the age of twenty-two. This attack is disregarded by many of his biographers, but Wright states that the depression was more marked than any that had gone before, and was of sufficient severity to cause a suspension of Cowper's studies. It lasted for twelve months, disappeared suddenly, and was followed by a period of hypomania which took a religious aspect. "My heart," says Cowper," became light and joyful in a moment, I could have wept with transport had I been alone." It is stated that he laughed until his sides ached, at anything or nothing.

[51] Life, Andrew Lang. [52] Life, Thomas Wright, 1892.

The first attack of violent mania occurred at the age of thirty-two. Proving the falsity of the various theories of the cause of his insanity, namely, licentiousness, religion, etc., Goldwin Smith[58] says, "The truth is, his malady was simply hypochondria, having its source in a delicacy of constitution and weakness of digestion, combined with the influence of melancholy surroundings." The circumstances surrounding his mental breakdown are as follows: The office of Clerk of the Journals in the House of Lords was vacant. Cowper received the nomination. An examination before the Peers, however, had to be undergone. Under the strain of the pending examination Cowper developed delusions of persecution, and fancied there was a force at work against him. He could not take up a newspaper without reading in it a fancied libel of himself. He imagined certain members of the House of Lords were leagued against him. After hopelessly poring over the journals for some months he became mentally deranged and attempted suicide. He afterwards gave a detailed account of the feelings which led him to attempt this rash act. In his earlier days he had read a treatise in favor of suicide. These arguments kept recurring to his mind and he could not rid himself of them. Finally he bought a bottle of laudanum with the intention of swallowing it. With the typical instability of purpose seen in the manic-depressive he changed his mind and decided to abandon suicide and place himself in a monastery. Before he could pack his trunk he again changed his mind and decided to drown himself. He called a coach and ordered the coachman to drive to the tower wharf, intending to throw himself in the river. The low tide and the presence of a porter on the dock caused him to again change his mind. During the trip home he attempted five times to take the laudanum which he still carried in his pocket. He stated that his hand became paralyzed and he could not raise the poison to his lips. The night before the day appointed for the examination he lay with the point of a knife pressed against his breast, but lacked the courage to drive it into his heart. Towards morning he resolved to hang himself, and this attempt would have been successful but for an accident. He suspended himself from the door casing, and had become unconscious when the garter by which he was suspended broke. The noise of his fall brought the laundress, who supposed him to be in a fit. When the day of the examination arrived Cowper was so completely deranged that all hope of securing the position for him was abandoned. After his attempted suicide he was seized with a religious horror of his act, and for months he entertained the delusion that his soul was lost, and that he had committed the unpardonable sin. During this period he composed a set of English Sapphics which unfortunately were preserved. Goldwin Smith describes them as "a ghastly play of poetic faculty in a mind utterly deprived of reason, and amidst the horrors of onrushing madness. Diabolical they might be called, rather than religious." During this attack, Cowper suffered from auditory and tactile hallucinations. He gave a detailed account of his psychosis in "The Memoir." He was finally placed in a

[58] Essay on Wm. Cowper, Goldwin Smith, 1880.

private sanitarium, where he recovered suddenly, after a few months. Cowper ascribed his recovery to the religious light which broke suddenly upon him.

He immediately passed into a state of hypomania, which he attributed to his change of religious attitude. Wright says, "In place of unspeakable wretchedness came transcendent happiness. To rejoice day and night was all his employment. He was even too happy to sleep much, thinking it was lost time that was spent in slumber. Dr. Cotton was alarmed lest the sudden transition from despair to joy should terminate in fatal frenzy." This state of mind lasted for three months.

He appears to have remained in his normal mental condition for several years following this excitement, and in the interval composed the Olney Hymns. As another depression gradually overcame him, his poetry became tinged with the shadow of his approaching malady. The last poem written during this period of lucidity was the well-known hymn "God moves in a mysterious way." This was written after the onset of a depression, and after another attempt at suicide. Again the delusion that his soul was lost dominated his mind, and this delusion was reinforced by hallucinations of the most distressing kind. He says, "I was suddenly reduced from my wonted rate of understanding to an almost childlike imbecility. I did not indeed lose my senses, but I lost the power to exercise them. I could return a rational answer, but a question was necessary or I never spoke at all. This state of mind was encompassed by a misapprehension of things and persons. I believed everybody hated me. I was convinced that my food was poisoned, together with ten thousand megrims of the same stamp." He was once more placed in a sanitarium, where he again attempted suicide. This he did in obedience to what he supposed to be a divine command to offer himself a living sacrifice to God. This depression lasted six months.

The fourth attack occurred at the age of fifty-two. This was a mild depression of short duration, followed by a period of hypomania during which he composed "John Gilpin."

The fifth attack occurred when the poet was fifty-six years of age. This was more severe than the previous one, and he again attempted self-destruction by hanging. The accidental entering of the room by a friend was all that saved his life. In this case his recovery occurred suddenly after six months.

The sixth recurrence of mental disorder took place at the age of sixty-two, after prolonged and strenuous labor connected with the translation of Homer. His former delusions again made their appearance. For six days he sat motionless and silent, refusing food almost entirely. Then followed a period of agitation and apprehension graphically described by Lady Hasketh in a letter to a friend. "He does nothing but walk backward and forward. He does not sit down for more than a half hour all day except at meal time. He has come to expect daily and hourly that he will be carried away, and he kept in his room from breakfast until four o'clock Sunday because he was afraid someone would take possession of

his bed." Auditory hallucinations were so distressing that his friends arranged a speaking tube in his room through which they sent comforting messages, but all to no purpose.

In the life of Cowper we see another example of distressing poverty, the result of incompetency, spasmodic industry and lack of fixity of purpose. From the consequences of these deficiencies he was saved, to a large extent, by his willingness to accept assistance from anyone who might offer it. He had many friends, and on the bounty of one of them, a Mrs. Unwin, he existed for thirty years. During his lifetime he tried many occupations. He studied law for several years, was artist, carpenter, farmer and teacher in turn. Many of his poems he left uncompleted. "The Mediterranean" was commenced but never finished. Of "The Four Ages" he wrote but a fragment.

Although only six distinct attacks of insanity have been described in detail, all biographers agree that Cowper was subject to mild depressions and elations all his life. During the last three years of his life senile and arterio-sclerotic changes were probably added to his original psychosis, and he is said to have had only "occasional gleams of reason, and faint revivals of literary faculty." During one of these his last and most pathetic poem, "The Castaway," was composed. The brightness of his mental faculties, which had so often been temporarily obscured by attacks of manic-depressive insanity, was at last extinguished in a cloud of the darkest despair.

John Ruskin, whose father and mother were first cousins, suffered from periodic attacks of insanity. In this case we see recurrent attacks of mania, but no depressions. These attacks seem to have made their appearance when the author was about twenty, but were at first mild in character. It was not until he was about forty years of age that his friends realized that he was actually insane, and it was not until he was fifty-eight that his excitements became so severe that he was unable to conduct his lecture course at Oxford. During his early life his mania took the form of social and religious reform. He engaged in constant controversies on all sorts of subjects, and was bitter in his denunciations of all classes and sorts of persons. Mr. Cook says, "He was like the living conscience of the modern world." Despite his most frantic efforts to reform the world his work appeared to have little effect. He once confessed "it is not my work that drives me mad, but the sense that nothing comes of it." His conduct was far from exemplifying the reforms he insisted upon for others, and this may have had something to do with the ineffectiveness of his labors as a reformer. Describing himself, he says, "Vacillating, foolish, miserably failing in all my conduct in life, and blown about hopelessly by storms of passion, I, a man clothed in soft raiment, I, a reed shaken by the wind, have yet this message to all men again entrusted to me." In spite of his admitted weaknesses, he clung to the delusion that he was a specially appointed reformer of the world. Harrison says,[54] "He was at all times a megalomaniac."

[54] Life, Frederick Harrison.

As he advanced in years his attacks of mania became more pronounced. Harrison says, in speaking of these, "a cruel record—a state of hopeless confusion of letters, drawings and works." Ruskin himself describes them as follows:[55] "My illnesses, so called, are only brought on by vexation and worry, and leave me after a few weeks of wandering thoughts the same as I was before. I can't fix my mind on a sum in addition. It goes off between seven and nine into a speculation on the seven deadly sins or the nine muses."

During the last twenty years of his life his attacks are described by his biographers as "attacks of brain fever." Collingwood, his private secretary and biographer, describes his condition at sixty-five, "The attacks of mental disease which at the time of his recall to Oxford seemed to have been safely distanced, began again, at more frequent intervals. Crash after crash of tempest fell upon him, clearing away for a while, until they left him beaten down and helpless at last. During his declining years his mind was often clouded."

It is remarkable that with the many recurrences of attacks of mania, Ruskin did not become demented. It is stated by his biographers that for one year prior to his death, which occurred at the age of eighty, his mind was perfectly clear. Harrison says, "His attacks of brain fever had passed over him, like passing storms, leaving a clear sky."

Robert Burns.[56]—The tragic life of the "ill-starred genius of Scotland" has been portrayed again and again by biographers, and while they have dilated upon his brilliant genius, his vivid imagination, his sly humor, his irresistible pathos, they have one and all tried to excuse or explain the reckless folly and excesses which blasted his career and finally caused his untimely end. His comparative failure has been ascribed by some to poverty, others to circumstances, lack of opportunity, evil companions, lack of will-power, etc. There is to my mind a deeper reason than these, namely, the fact that the Scottish poet was born with a manic-depressive temperament which constituted a mild degree of insanity. From early boyhood Burns suffered from pathological depressions. These were described by his brother, Gilbert Burns, as occurring when the poet was thirteen or fourteen years of age. "I doubt not but the hard labor and sorrow of this period of his life was, in a great measure, the cause of the deep depressions of spirit with which Robert was so often afflicted through his whole life afterwards." At this time he was almost constantly afflicted in the evenings with a dull headache, which at a future period of his life was exchanged for a palpitation of the heart, and a threatening of fainting and suffocation in his bed in the night time.

During his depressions he showed the feelings of inadequacy, retardation and ideas of self-accusation seen in the manic-depressive, and these are brought out clearly in many of his letters and poems. That these depressions were not caused by the reaction from alcoholic excesses is shown by

[55] Life, M. H. Spielman.

[56] Robert Burns, A. Cunningham.

an extract from a letter written to his father at the age of twenty-three, before the poet had begun to indulge in alcohol to excess. "The finishing evil which brought up the rear of the infernal file was my constitutional melancholy being increased to such an extent that for three months I was in a state of mind scarcely to be envied by the hopeless wretches who have got their *mittimus* 'Depart from me, ye cursed.'" A short time later he wrote, "The weakness of my nerves has so debilitated my mind that I dare neither review past events, nor look forward to the future. I am quite transported at the thought that ere long, perhaps very soon, I shall bid an eternal adieu to all the pains and uneasiness and disquietudes of this weary life. For I assure you I am heartily tired of it, and I do not very much deceive myself I could contentedly and gladly resign it."

For months at a time Burns was unable to produce anything in a literary way, or even take an interest in the common affairs of life. His feeling of inadequacy and apprehension are pathetically described in his own words, "I saw myself alone, unfit for the struggle of life, shrinking at every rising cloud in the chance-directed atmosphere of fortune, while all defenceless I looked around for a cover. When all my school-fellows were striking off with eager hope, earnest, intent on some one or other of the many paths of busy life, I was standing idly in the market-place, or only left the chase of the butterfly from flower to flower, to hunt fancy from whim to whim."

The following extracts from letters show the state of Burns' mind from time to time. When his fame as a poet had become established we find him writing from Edinburgh, "These have been six horrid weeks. Anguish and low spirits have made me unfit to read, write or think. I have a hundred times wished that one could resign life as an officer does a commission, for I would not take in any poor, ignorant wretch by selling out." Writing to Cunningham he says, "Canst thou minister to a mind diseased? Canst thou speak peace and rest to a soul tossed on the sea of troubles, without one friendly star to guide her course, and dreading that the next surge may overwhelm her? For these two months I have not been able to lift a pen. My constitution and frame were *ab origine* blasted with a deep, incurable taint of hypochondria which poisons my existence." To another friend he wrote, "My body, too, was attacked by the most dreadful distemper—a hypochondria or confirmed melancholy. In this wretched state, the recollections of which make me shudder, I hung my harp on the willow trees, except in some lucid intervals." To Mrs. Dunlop he wrote, "Will you take this effusion, miserable effusion of low spirits, just as they flow from the bitter spring? I know not of any particular cause for this worst of all my foes besetting me, but for some time my soul has been beclouded with a thickening atmosphere of evil imaginations and gloomy presages."

While the larger number of Burns' poems were written in a cheerful strain, his depressions apparently not being conducive to the production of poetry, we find scattered here and there lines which indicate abnormal depression. The following, written to a mouse whose nest he had destroyed in plowing, shows an apprehensiveness abnormal in one so young,

"Still, thou art blest compared wi' me.
The present only toucheth thee,
But Oh! I backward cast my e'e
On prospects drear!
And forward tho' I canna see,
I guess and fear."

His "Ode to Despondency" is of the same order. In this he complains that life is an intolerable burden, expresses apprehension of impending calamity, from which he sees no hope of escape except by death. Cunningham says, speaking of the character of Burns, "The gaiety of many of Burns' writings and the lively and even cheerful coloring with which he portrayed his own character may lead some persons to suppose that the melancholy which hung over him toward the end of his days was not an original part of his constitution." It is not to be doubted, indeed, that this melancholy acquired a darker hue in the progress of his life, but independent of his own and his brother's testimony, evidence is to be found among his papers that he was subject very early to these depressions of mind, which in him arose to an uncommon degree.

Alternating with these depressions were periods of reckless gaiety which suggest hypomania. During these attacks he criticized the church, the state and persons in authority in the most scathing and extravagant manner. The indecorum of his speeches and poems caused him to be accused of heresy in the church and disloyalty to his king and country. The latter accusation came near costing him his position as exciseman. He is described as the standing marvel of the town in which he lived. His toasts, his jokes, his epigrams and his songs were the daily food of conversation and scandal. Describing his own feelings Burns says, "In the hour of social mirth my gaiety is the madness of an intoxicated criminal under the ban of the executioner." The wonderful variety of the trend of humor and thought in the poems of Burns, which were all a part and parcel of his own history, can only be explained by his alternating depressions and excitements. That he should have composed "The Cotter's Saturday Night" and "The Holy Fair" within a few days of each other seems incredible, and can only be explained in this way. James Gray says, "Over the social bowl his wit flashed for hours together, penetrating whatever it struck like the fire from heaven. It was playful or caustic by turns, following an allusion through all its wanderings, astounding by its rapidity or amusing by its wild originality, and grotesque yet natural combinations, but never, within my observation, disgusting by its grossness."

To alleviate his depressions Burns resorted to the excessive use of alcohol, which invariably brings a train of evils in its wake. He died at the age of thirty-seven from the effects of prolonged dissipation. The epitaph which he composed about ten years before his death is strangely appropriate, and conveys with pathetic force the insight of the author, who found himself unable to cope with the mysterious force which carried him downward.

Francis Parkman.—The diagnosis of the mental affection of the noted historian and novelist is not so easy as in the case of the poets. Parkman's biographers, being his personal friends, carefully concealed or ignored the symptoms of mental disorder which at times existed, and one writer deplores the fact that Parkman himself disclosed so many facts in regard to the same. All the information that can be gathered in regard to the psychosis of the author is gleaned from his autobiography and letters. Being a reticent, uncomplaining New Englander, his works show nothing of his abnormal mental state, but occasional glimpses may be caught in regard to it in reading his letters. In a communication to Mr. Brimmer[57] he says, "Causes antedating my birth gave me constitutional liabilities to which I largely ascribed the mischief that ensued. As a child I was sensitive and restless, rarely ill but never robust." He also made the statement that his childhood was neither healthful nor buoyant.

As a student at Harvard he was so silent and reserved that his classmates ironically nicknamed him "*lucus a non lucendo.*" While in his junior year, at the age of twenty he was forced, on account of ill health, to abandon his studies and go abroad. Whether this illness was of body or mind appears to be a mystery. In a letter written to his mother he stated that he had resolved to go to Paris to see Dr. Louis, the head of his profession, to see if he could do anything for him.

At the age of twenty-three, while at Harvard, we have the first definite account of an attack of mental disorder, which was, in all probability, manic-depressive insanity. In a letter to Mr. Brimmer, speaking of this period he says, "I had been conscious for some time of an overstimulated condition of the brain. While constantly reminding myself that the task before me was a long one, and that haste was folly, and that the slow way was the surer and better one, I felt myself spurred forward irresistibly. It was like a rider whose horse has got the bit between his teeth, who, while seeing his danger cannot stop. As the mischief gave no outward sign, nobody was aware of it but myself." Weakness of vision, which he claimed was one of the symptoms of this disorder, caused him to abandon all literary work. He then went West, where a life of privation and hardship caused what he described as a "wasting and dangerous disorder." He says, "After going back to civilization the malady gradually subsided, after setting in action a train of other disorders which continued its work. In a year or more I was brought to a state of nervous prostration which debarred all mental effort."[58] "The difficulties were threefold, an extreme weakness of sight, disabling him from even writing his name except with eyes closed, a condition of the brain prohibiting fixed attention except at occasional brief intervals, and an exhaustion and total derangement of the nervous system, producing of necessity a mood of mind most unfavorable to effort." He was at this time twenty-five years of age. This attack passed, and the author was enabled to finish his

[57] Life, Henry Dwight Sedgwick.

[58] Autobiography.

"Conspiracy of Pontiac." His mental condition appears to have remained normal until the age of twenty-eight, when a tubercular knee kept him a prisoner for two years. Parkman describes this attack in some detail.[59] "The effects of the confinement were as curious as unenviable. All the irritability of the system centered in the head. The most definite of the effects produced was one clearly resembling the tension of an iron band around the head, and contracting with an extreme force with the attempt to concentrate the thoughts, listen to reading, or at times to engage in conversation. This was, however, endurable in comparison with other forms of attack, which cannot be intelligibly described for want of analogous sensations by which to convey the requisite impressions. The brain was stimulated to restless activity, impelling through it a headlong current of thought which, however, must be arrested, and the irritated organ held in quiescence, on a penalty to avoid which no degree of exertion was too costly. The whirl, the confusion and strange, undefined torture attending this condition are only to be conceived by one who has felt them. Possibly they may have analogies in the savage punishment once in use in some of our prisons, where drops of water were made to fall from a height on the shaved head of the offender, soon producing an effect which soon brought to reason the most contumacious. Sleep, of course, was banished during the periods of attack, and in its place was demanded, for the exclusion of thought, an effort more severe than the writer has ever put forth in any other cause. In a few hours, however, a condition of exhaustion would ensue, and both patient and disease being spent, the latter fell into a dull, lethargic state." Years afterwards, in a letter to Mr. Brimmer, Parkman described this attack as follows: "I was attacked with an effusion of water on the knee, which subsided in two or three months, then returned and kept me prisoner for two years, and deprived me of the necessary exercise for several years more. The consequence was that the devil which had been partially exorcised returned triumphant. The evil now centered in the head, producing cerebral symptoms of such a nature that in 1853 the physician who attended me at the time, after cautious circumlocution, said in a low voice that his duty required him to warn me that death would probably follow within six months, and stood amazed at the smile of incredulity with which the announcement was received. I had known my enemy longer than he, and learned that its mission was not death but torment. Five years later another physician, an eminent physiologist of Paris, tried during a whole winter to discover the particular manifestations of insanity which he was convinced must attend the symptoms he had observed. 'What conclusion have you reached?' I asked. 'That I never saw a saner man in my life.' 'But,' said I, 'what is the chance that this brain of mine will ever get into working order again?' He shook his head and replied, 'It is not impossible.' With that I was forced to content myself. Between 1852 and 1860 this cerebral rebellion passes through great and seemingly

[59] Life, Charles Haight Farnham.

capricious fluctuations. It had its ebbs and floods. Slight, and sometimes imperceptible, causes would produce an access which sometimes lasted with little respite for months. When it was in its milder moods, I used the opportunity to collect material and prepare ground for future work, should work ever become practicable. When it was worst the condition was not enviable. I could neither listen to reading nor engage in conversation even of the lightest. Sleep was difficult, and often banished entirely for one or two nights, during which the brain was apt to be in a state of abnormal activity, which had to be repressed at any cost, since thought produced the intensest torture. The effort required to keep the irritated organ quiet was so fatiguing that I occasionally rose and spent hours in the open air. I found distraction and relief in watching policemen and the tramps on the malls of Boston Common, at the risk of passing for a tramp myself. Toward the end of the night the cerebral excitation would seem to tire itself out, and gave place to a condition of weight and oppression much easier to bear."

For half a century Parkman appears to have suffered from periodic attacks of mental disturbance which were precipitated by ill health, trouble and misfortune. The attack described above, which occurred at the age of thirty-four, was caused by the death of his wife and son within a few months. During this attack he consulted the famous Brown-Sequard. The French physicians were at variance as to the diagnosis and treatment of his mental disorder. Farnham states, "The wisest did nothing, one recommended tonics, another milk diet, another galvanism, another hydrotherapy, one scarred him behind the neck with nitric acid, another drew red hot irons along his spine." Another author states that his general troubles were believed by the doctors to come from an "abnormal state of paralysis of certain arteries of the brain." There is to my mind little doubt that the symptoms so graphically described by Parkman himself, the flight of ideas, incapacity for consecutive and prolonged thought, restlessness, sleeplessness and vague somatic sensations, the early age of onset, and the absence of dementia, prove that these attacks, which are referred to by biographers as a "mysterious nervous disorder," were nothing more or less than the hypomania, if not the mania, of manic-depressive insanity.

Edgar Allan Poe.—Around few characters has public opinion waged such bitter and uncompromising warfare as around the character of the poet Poe. The literature on the subject of his life and writings, though voluminous, is far from satisfactory. Some of his biographers have described him as proud, vain, egotistical, immoral, lacking in self-control. Others have pictured him as humble, kind, affectionate, reserved, a man of almost superhuman virtues. Unfortunately few of his letters have been preserved, and this most fruitful source of knowledge of his real character is almost entirely wanting. We have, therefore, to draw our conclusions from his stories, poems and biographies.

The theory that Poe was insane was first advanced in 1875, when F. G. Fairfield, in an article in Harper's Bazaar, endeavored to prove, on the

theory of Dr. Leblois, that the peculiarities of Poe were due to dormant epilepsy which manifested itself in periodic outbursts of insanity. In 1897, Arvède Barine[60] in three articles endeavored to show that Poe was essentially a dipsomaniac, and that all his other irregularities grew out of this unfortunate weakness. In 1904 Lauvrière published an extensive study of the Psychopathy of Poe, in which he endeavors to prove that the poet suffered from circular insanity, on a basis of psychopathic degeneracy.

Certain it is, Poe labored under a heavy hereditary burden, born of alcoholic and tubercular parents, with a sister an imbecile, a brother an alcoholic and mentally unbalanced, and an uncle insane, he early displayed evidences of abnormal mentality. Precocity, exaggerated ego, insane ideas of grandeur and importance rendered him not amenable to discipline and training. When poverty and adversity overtook him, and he was thrown upon his own resources, his mental weakness made its appearance. Unable to cope with the difficulties of life, he was plunged into the depths of depression and despair, which he attempted to alleviate by recourse to intoxicants, which added a weird coloring to his already diseased imagination. From the cradle to the grave he oscillated between extreme phases of ecstasy and melancholy. Lauvrière[61] says, "It can scarcely be doubted that towards the end of his sad career, from the time of his second sojourn in New York, and above all from the death of his dear Virginia, the poor degenerate was scarcely more than a kind of insane person, partially reasoning, in whom circular insanity, in double form, left more and more its grip of dipsomanic impulsions on his attacks of melancholic depression, and of mystic erotomanic fury on his attacks of manic exaltation."

The various histories of the life of Poe, although conflicting in many respects, all agree that he was subject to pathological depressions, which during the latter part of his life were complicated by alcohol and drugs. When the poet was sixteen, he fell violently in love with a woman of thirty-one. Her death threw him into an acute depression, and for hours at a time he would lie stretched upon her grave, regardless of wind and rain.[62] Thomas Bolling,[63] in his reminiscences of Poe, states, "He wore a melancholy smile always, and even his smile (for I do not remember ever to have seen him laugh), seemed forced. R. W. Griswold, writing in the New York Tribune at the time of Poe's death, said of him, "His conversation was at times almost superhuman in its eloquence. His imagery was from worlds which no mortal can see, but with the vision of genius. He was at all times a dreamer, dwelling in ideal realms in heaven or hell, peopled with creatures of his own brain. He walked the streets in madness or melancholy, with lips moving in indistinct curses, or with eyes upturned in passionate prayer. With his glances introverted and a heart

[60] Revue des Deux Mondes, July-Sept., 1897.
[61] Edgar A. Poe, Lauvrière, 1904.
[62] The Case of Edgar A. Poe, Robert A. Stewart.
[63] Memoir, John R. Graham.

gnawed by anguish, and with a face shrouded in gloom, he would brave the wildest storms all night, with drenched garments; and with arms beating the winds and rain, would speak as if to spirits." N. P. Willis describes him as having "two antagonistic spirits imprisoned in one body, equally powerful and having complete mastery, by turns, of one man, that is to say, inhabited by both a devil and an angel." C. Mercer Adams says, "In his happier and saner moods he is a delightful and entertaining writer. The two-fold nature of Poe has been variously presented by his biographers."

The poems of Poe, especially those written during the latter part of his life, were largely pictures of his own feelings and passions. One of the last poems written by him, entitled "Alone," would indicate that he realized his mental peculiarities, but was powerless to overcome them. In the few letters of Poe which have been preserved, we have a very good description of attacks of manic-depressive insanity. One of these, written at the age of twenty-four, before he had become a prey to the drink habit, states, "Excuse me, my dear sir, if in this letter you find much incoherency. I am suffering under a depression of spirits such as I have never felt before. I have struggled in vain against this melancholy. My heart is open before you, if it be worth reading, read it. I am wretched and know not why. O pity me, for I feel that my words are incoherent, but I will recover myself. You will not fail to see that I am suffering under a depression of spirits which will ruin me if it be long continued."[64]

Writing to Lowell he says, "I am extremely inactive and prodigiously industrious by fits. There are periods when every sort of mental exercise is torture to me, and when nothing pleases me except to commune in the solitude of mountains and woods, those altars of Byron. I am thus lost in dreams and in vagabond wanderings for entire months, and awaken finally a prey to a sort of mania for writing. Then I scratch the whole day, and read all night while the malady lasts." In a letter to a friend he says, "I become insane with long intervals of horrible insanity. During these fits of absolute unconsciousness, I drink—God knows how often or how much. As a matter of course my enemies referred the insanity to the drink rather than the drink to the insanity." There are two years of Poe's life, after he was expelled from West Point, of which biographers can give no account. It is probable that they were occupied in these insane wanderings that he describes.

The various biographers of Poe have drawn a pathetic picture of a man totally unfit to fight the battle of life, struggling to make a living for himself and a tubercular wife, suffering from prolonged periods of depression during which he could produce nothing in a literary way, and again from excitements during which he wrote with facility, but displayed the critical and dictatorial attitude of the manic-depressive, coupled with exaggerated ego and expansiveness. During these periods he alienated the affections of his contemporaries by his scathing criticisms, and

[64] Memoir, Ingram.

insulting comments on their works. Instead of devoting his time to the production of poems and stories, it is stated by Ingram that he frittered away his genius writing biting and sarcastic reviews.

His industry was necessarily spasmodic, and consequently he wrote nothing that called for prolonged and sustained effort, or for deep and continued thought and concentration. His fame rests on a few short poems. His pathological reaction to alcohol, in which he indulged freely during the latter years of his life, complicated his psychosis to some extent, and it is impossible to say how much it is responsible for the hallucinations and delusions with which his works abound. Willis[65] says, "With a single glass of wine his whole nature was reversed. The demon became uppermost, and although none of the usual signs of intoxication were visible, his will was palpably insane. Possessing his reasoning faculties in excited activity, with his wonted look and memory, he easily seemed personating only another phase of his mental character and was accused, accordingly, of insulting arrogance and bad-heartedness. In this reversed character it was never our chance to see him. We knew it from hearsay, and we mention it in connection with this sad infirmity of physical constitution which puts it upon very nearly the ground of temporary and almost irresponsible insanity."

Out of a strange mixture of insane hallucinations, delusions, excitements and depressions, alcoholism and morphinism, Poe's literary genius formed a wonderfully weird and grotesque literature, in which all these characteristics appeared and were strangely commingled. A hallucinatory experience is probably described in "The Raven," where the poet sees and talks with the bird, and the air grows dense with a perfume from an unseen source. His stories are weird, unnatural and grotesque. They depict the obsessions, impulsions, delusions of persecution, illusions and hallucinations of an insane mind with horrible vividness. Prince Prospero sees the bloody mask of the Red Death arise in his closely guarded palace. The Seven Drinkers of Ptotemain see the phantom of death. The Man of the Crowd cannot shake off the tyranny of his crimes and his remorse. The Black Cat follows its victim until it drives from his mind everything that is good, leaving only the darkest and most evil thoughts and a hatred of all mankind. Many of Poe's characters were insane. Bernice was an epileptic, Madeline had periods of cataleptic stupor. Stewart, in describing his works, says, "His genius worked in the wild tissues of delirium, and gossamer fabric of dreams. An indescribably weird phantasmagoric dreamscape, peopled by spectral women, wraiths and demons, he fills with haunting music caught from the sighing of the blast mid mouldering ruins, shrieks of despair in the dark, the roar of the destroying tempest, the gurgling of buried streamlets, the sigh of the lone fir trees, the wail of lost souls, the host of birds of ill omen, the triumphant clamor of the whirlwind, the regurgitation of the devouring and engulfing deep, the laughter of derisive demons, all these compelling sounds of nature, all those

[65] Death of Edgar A. Poe, Willis.

figments of fancy that awaken the soul to awful premonitions of impending and unavoidable woe."

In concluding his thesis of the subject of Poe, Lauvrière says, "Poor lunatic! who in spite of all his pretensions to wisdom did not understand that to be too much an angel one is a beast. Your fall, will it serve as an example? Will the spark of genius immortal in your books compensate you for your faults and your misfortunes? Culpable or not, genius or not, victim of life, we pity you none the less."

Considering the abnormal mentality of writers whose histories have hitherto been briefly recounted, we are led to ask why they devoted their lives to literature. The literary genius, as we have seen him here, is apparently an individual utterly unable to adapt himself to ordinary surroundings. With an emotional instability which raises him to the pinnacle of exaltation one day, and plunges him into the depth of despair the next, his industry must necessarily be spasmodic. The common ills of life, poverty, sickness and death, which the normal man rises above, overwhelm him and throw him into a depression so profound that no stimulus is sufficient to arouse him to action. We see him placed in a world where success is gained only by constant and unceasing effort. In the grind for his daily bread, and in the stress and rush of business, the genius is rudely pushed aside by those of coarser grain and "earthlier make." His pride is humbled, his sensibilities wounded, his ambition crushed. He finds himself unable to cope with the situation. In the world in which he is placed nothing is ideal—the beautiful is ever marred by the unsightly, the roses are protected by thorns, pleasures are mixed with pain. In compensation he creates for himself a world of his own, in which his imagination eliminates the unsightly, the disagreeable and the evil; or on the other hand he pictures it in magnified form. In his literature he finds an outlet for all his abnormal feelings and passions. Here he pours forth, under various guises, his rapturous joys and his woeful depressions, his loves and his hates, his hopes and his fears, his dreams of bliss and his dread of impending calamity. The manifestations of his abnormal mental condition, which are denied him in actual life, find an outlet in poetry and fiction, under the guise of literary and poetical inspiration.

MENTAL DISORDERS ASSOCIATED WITH BRAIN SYPHILIS.

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Syphilitic infection, more than any other, possesses an enormous potential for producing disturbances in the functions of the central nervous system. So apparent has been this etiologic relation that not uncommonly it has been assumed and contended that there are certain variations in the character of the syphilitic toxic agent, and that there is an especial strain of syphilitic virus which possesses a particular affinity for nervous tissue. There have been many facts forwarded to substantiate the claim of the existence of a *lues nervosa,* but Hübner (1) after considering these concludes that the data are insufficient and not convincing, and he cites several cases of his own which he believes cannot be explained by the assumption that there exists a luetic virus having a specific affinity for nervous structure. However, for the time being, in so far as this paper is concerned, this is a subsidiary point and at least we may agree in safety with Ziehen (2) that "syphilis is one of the most important etiologic moments in psychopathology."

The stupendous advances which have been made in our knowledge of syphilis during the past half decade have obviously served to attract a vast amount of attention and profitable study toward those abnormal mental states associated with syphilitic lesions of the central nervous system. Before serologic researches had offered such valuable aid, anatomy already had begun to recognize characteristic structural changes, occurring in cerebral tissue in definite relation with certain conditions, then supposedly dependent indirectly upon a syphilitic infection—the metaluetic diseases—especially general paralysis. To-day we recognize a characteristic histopathologic picture of paresis, and there can be no doubt that this disease depends, it may be remotely though

none the less definitely, upon a syphilitic infection. Regarding the relationship existing between paresis and cerebral syphilis, there is considerable discussion—is the latter but a transitional period in the development of the former, and are we not dealing with but different stages of the one disease? It seems more evident, as indicated by Schroeder (3), that we have to deal with two separate but possibly, though not necessarily, coincident processes. Sträussler (4) has recently taken up the consideration of the lues-paresis question in an exhaustive and detailed study of the literature and his own cases, from which he has concluded that they are two absolutely distinct disease processes, but that there is no reason why they should not coexist, as is often the case.

Possibly we are about to arrive at a clearer understanding of the nature of these syphilitic disorders through the work of the biochemists. It has been shown (Glikin (5), Peritz (6), and others), that in paresis, there is to be found a disturbance of lecithin metabolism, an increase in this phospholipin in the blood concomitantly with a decrease in the bone marrow. Aside from the post-mortem examination, we may to-day within very narrow limits of error determine *intra vitam* the presence of a latent, though potentially virulent syphilitic infection. With the broadcast promulgation of any new diagnostic process, we commonly find a hyperzealous response with correspondingly disproportionate reactions. So it has been with the Wassermann test in psychiatry. It is almost possible to say that recently too much importance has been attached to syphilis as an etiologic agent in the production of mental disorders.

At times it is quite apparently forgotten that in dealing with such a widespread disease as syphilis, mental disorder occurring in a syphilitic does not necessarily mean that such mental disorder is a result of the syphilis, the question of coincidence as well as cause, must receive due and proportionate attention. In other words, it should be clearly recognized that not in every instance in which there occurs a positive Wassermann in the blood serum of one who is insane, have we to deal with a psychosis dependent upon syphilis. However, the detection of the presence in the blood serum of syphilitic anti-bodies (to use the familiar figure of speech of the Ehrlich theory), though it does not prove that an existing psychosis is of luetic origin, yet it, as least, serves to keep this

probability in the field of attention as a possible causative agent. The hypothesis, that in such cases syphilis is the *agent provocateur* may be used as a working basis during the more careful and detailed examination of an apparent but not proven assumption. And at the same time by more intensive study of the symptomatology of such cases, there is a greater possibility that, should there be any characteristic symptom complex expressive of the different pathologic types of cerebral syphilis, it may be recognized and given definite form.

One may question why it is that one syphilitic develops as a result of the infection a mental disorder, while a second does not. The possibility of a *lues nervosa* has been mentioned. It is very patent that aside from the syphilitic virus there must be other factors which are coactive determinants in the production of the psychosis. From analogy, perhaps, it becomes almost as obvious that here must be considered principally the mental make-up upon which the syphilis has become a modifying factor—the soil upon which the seed has fallen. It has been observed (E. Meyer (8)) that the symptomatology of certain nervous system disorders is made more intense by a subsequently acquired syphilis. We know too, that there are constitutional psychopathies which predispose the individual to frank mental upsets which do not occur in more normally constituted mental organizations under similarly unfavorable circumstances. Quite recently Czarniccki (9) has observed that the symptomatology of dementia precox may be markedly modified by a superimposed cerebral syphilis as somewhat similarly Graeter (10) has demonstrated clearly the active rôle of alcohol in bringing into full bloom a latent precox.

Among other more recent advancements in syphilographic knowledge, an important item is that we now appreciate more fully that the nervous system may be affected much earlier in the course of this disease than formerly was believed. Although it may be that they are more common during the second or third year after the initial lesion, cerebral symptoms not infrequently develop while the roseola is at its height or even before the chancre has disappeared. Furthermore, this fact is found to bear more than an aspect of mere passing interest. It appears quite plainly from the work of Costantini (11) (who gives an excellent review of the literature bearing upon this phase of the subject)

that this precocious cerebral syphilis is of an especially malignant and fatal type. It has been assumed (Jolly (12)) that in those syphilitic individuals in whom there develops during the early stages of the infection some mental abnormality (not necessarily with gross focal cerebral lesions) such abnormality may owe its origin to very slight vascular changes, the prodromata of those pathologic vascular conditions which subsequently are to become so markedly evident and widespread. Further too, it is assumed that there may result some degree of meningeal irritation of mild character. Definite confirmation of such mild changes is difficult to obtain for the obvious reason that the patients do not die at this stage of the disease and post-mortem examinations are consequently infrequent. However, the results of E. Meyer (8) have offered a partial confirmation of these suppositions. Among those patients examined by him were sixty-one persons in the secondary stage of syphilis. Thirty-one of these showed pupillary changes, not, however, in themselves sufficient to permit of definite and final conclusions concerning the presence of an organic disease (thirteen of these showed slight difference in size and form only, while in eighteen there was observed a sluggish light reaction). Of the twenty-five on whom an examination of the spinal fluid was made, in eighteen there was noted a varying grade of lymphocytosis, although there did not seem to exist any quantitative relation between the degree of this and the intensity of the nervous symptoms.

With the more accurate methods which have been developed for the clinical and pathological recognition of the direct or remote effects of syphilis upon the function of the central nervous system, it has become possible to study more minutely and under a clearer illumination many important features. The first result of this is that we find a great many of our former conceptions and conclusions must be altered, if not entirely discarded. Many generalizations formulated on previous researches are found to waver on a disintegrating foundation. We must return to the task of collecting more facts, former work needs to be gone over carefully, subjected to the censorship of modern criticism and in this way only is there hope that some order may arise from the almost chaotic mental symptomatology now associated with cerebral syphilis.

The internists have taught us that syphilis has but little originality, that it is the imitator *par excellence,* but it is only recently that this has been more extensively recognized by those interested in mental medicine, and that it has been appreciated that there is no mental symptom complex which may not owe its existence to a syphilitic infection. The advancing wedge has already been driven to an appreciable extent into this hitherto little known material. With a fair degree of certainty in the majority of cases we may recognize clinically paresis and its imitator, syphilitic pseudo-paresis. The discussion of the relation of these two conditions is outside the intentions of this paper. With our present knowledge we must admit their existence and agree that it is often a matter of extreme difficulty, sometimes impossibility, to differentiate them, especially clinically. A second group of mental disorders associated with syphilis which will receive only mention here are those with which occur the more prominent physical signs, such as are dependent upon the more circumscribed and focal lesions, the apoplectic type of brain syphilis as it has been called. In this group, little attention, mostly that of a secondary character, has been devoted to the observation and study of the mental symptoms other than the recognition of a secondary demential process. More generally they have been, as it were, looked upon as the unimportant and variable accompaniments of the more frequent, more evident and more tangible neurologic disturbances. Particular stress has been laid upon the occurrence of the epileptoid attack or its equivalent varying period of lowering of conscious threshold. Apparently it has not been so well recognized, or at least less study has been directed to the fact, that mental disturbances of varied types may be associated with the effect of syphilis upon the brain where the apoplectic or focal signs may be entirely absent or only occur at a time when the disease is clinically far advanced, such focal signs thus assuming a rôle of secondary importance. Heretofore many symptom complexes arising upon a syphilitic basis undoubtedly have been classed blindly among other psychoses which with our greater knowledge, we now realize syphilis may imitate. It is with this latter group of cases that we wish to deal.

The following cases have presented many extremely interesting questions bearing upon the group of mental disorders associated

with the cerebral lesions of syphilis. All are rather complicated and in none has the symptomatology been in any way characteristic of any single psychosis, although several have been simulated. In two (I, IV) it is possibly difficult to say with certainty that the mental disorder is actually causally associated with syphilis—the line of demarcation between coincidence and cause is drawn indistinctly. In the other two (II, III) the question of paresis is not certainly settled. It is on account of these doubts that the abstracts of the case records which follow are given rather fully.

1. B. 18906. A man, aged 33, single, having an alcoholic father and an insane sister. Born in Germany and received a meagre education, came to the United States at the age of sixteen. After working in various laboring positions, at the age of 20 (about 1898) he gave up a position as hostler for which service he was receiving only his living, because people were calling him vile and obscene names. After wandering for several months about the country, he enlisted in the army. At twenty-two (1900) he was thrown from a horse, receiving some head injury which rendered him unconscious for a short time, but after a few days was returned to duty. At twenty-four (1902) a venereal sore (chancre ?) for which he received no treatment, and at twenty-six (1904) gonorrhea which persisted for three years in a chronic course. Army record good, on three discharges received "character excellent" and on one "very good." During his service he received promotion after satisfactorily passing a mental and physical examination. (The passing of this examination requires more than the average grade of intelligence.) Has used alcohol since the age of twenty (12 years) to what extent excessively is indeterminate.

About January, 1910, following excessive drinking was treated for "delusional insanity" thought to be due to the head trauma received in 1900; at first was diagnosed as delirium tremens—"had delusions of persecution and thought angels and birds were longing to rescue him." (Recovered and returned to duty ?.) In May, 1910, received news of death of sister in insane asylum in Germany, became depressed, drank heavily and entertained suicidal ideas. Auditory and visual hallucinations became prominent—men peeped into his room at night, a man was seen under his bed, he saw animals—horses, geese, chickens—he saw Napoleon the first, his room was illuminated by a light coming through the ceiling from heaven and men's eyes appeared as though lighted by electricity. He heard men talking to him, threatening his life and calling him by obscene and vile names, the birds sang to him.

July 30, 1910.—"Actions and conversation would not lead one to believe that he is now insane." Quiet and orderly, "thinks he must have been out of his head to have been placed with other patients who are insane." No delusions or hallucinations. Voluntary movements slow, accurate. No rigidity, no convulsions, no pareses, tendon reflexes normal. No

disturbances of touch, taste or smell. No pupillary or ocular muscular anomalies. In August, 1910, the right pupil larger than left and reaction to light and accommodation sluggish. Became depressed, refused food, hallucinations and delusions return—is watched through transom, men talk to him and call him vile names, he is to be sent to prison and killed, his arms are to be amputated, etc. Wassermann reaction with blood serum twice negative—diagnosis "Chronic alcoholic dementia."

December 20, 1910.—Admitted to the Government Hospital for the Insane. On admission restless and uneasy, rambling and disconnected conversation much controlled by delusional ideas. Dilapidated delusional fabric—is Napoleon, God, has great powers, is persecuted, going to be killed, etc. Attention difficult to gain, impossible for several minutes to interrupt his delusional recitations. Attention poorly held, questions answered most imperfectly and incompletely, quickly loses the trend initiated and jumps off into another stream of thought. At times somewhat suspicious, in general, reaction indifferent, no evident elation or depression. Hallucinations of sight and hearing very prominent. No insight. Pupils—right larger than left, irregular in outline, react promptly to accommodation but not at all to intense light (electric pocket lamp) variations. Right lobe of thyroid enlarged, firm, no pulsations.

December 22, 1910.—Wassermann with blood serum double positive.* Wassermann with the spinal fluid negative. Noguchi test negative. Cells 2 per cmm.

December 28, 1910.—Gave fair account of past life, knows where he is and who brought him here; partially oriented for person and time. Is "in a lunatic asylum receiving capital punishment from heaven." No subjective appreciation of any change, is not ill either physically or mentally. Hears voices calling him obscene names; since last May this has continued night and day, sometimes sounds like a machine. These are male voices, coming from heaven, sound real and plain but talk so rapidly he "cannot get a word in edgewise." Sees moving pictures, Napoleon, many men and children, many appearing natural, others as spirits. Sometimes feels electricity on his head. Considerable divertibility of attention, internal distractibility, continuous logorrhea. His reproduction of the following story † is typical of his general reaction.

"It was about a boy being covered with gold, and he was going to be an angel. What was he going to eat, does it say anything about that?

*Wassermann tests and spinal fluid examinations in this and the following cases were made by Dr. W. H. Hough.

†(Original story, read to patient). It is related that at the coronation of one of the popes about three hundred years ago a little boy was chosen to act the part of an angel; and in order that his appearance might be as gorgeous as possible, he was covered from head to foot with a coating of gold foil. He was soon taken sick and although every possible known means were employed for his recovery, except the removal of his fatal golden covering, he died in a few hours.

Freiheit and liberty—he should have Freiheit, die mich meine, and he should sing the song Marseilles."

During the past week has shown transient periods during which he wept when complaining of the persecution to which heaven was subjecting him.

December 30, 1910.—Somewhat elated, conversation rambling, much prolixity and circumstantiality. He is descended from Napoleon, all his family have been in prison, he was born in prison, his father cut his throat, grandfather was burnt up, uncles and cousins all hung or shot themselves, never saw any people so poor as the members of his family, etc.

Muscles soft and flabby, no atrophies or hypertrophies, voluntary movements slow and retarded. Tremor of extended fingers, fibrillary tremor of tongue, at times some tremor of facial muscles. No speech defect. Station good with eyes closed, gait normal, though slightly unsteady. Muscular co-ordination good. Pupils unequal, right larger than left, irregular in outline, no direct or consensual reaction to light, sluggish to accommodation. No extrinsic ocular muscular pareses. Patellar reflexes increased, tendo Achilles present, plantar increased, no Babinski, no ankle clonus. Epigastric, abdominal and cremasteric reflexes present. Arm reflexes normal. No areas of anesthesia, no tender areas, sense of position good; localized pin pricks promptly. No astereognosis. Right lobe of thyroid enlarged; slight radial sclerosis. No scars or evidences of syphilis; physical examination otherwise negative.

January 3, 1911.—Taste—salt = salt; acetic acid = sour; glycerin = sweet; quinine and strychnine = sweet and bitter; smell—(both nostrils) cloves = peppermint; peppermint = peppermint; cinnamon = like some kind of bark we chew (cinnamon?), yes. Handwriting normal, urine negative. No febrile disturbance since admission.

January 4, 1911.—Wassermann with the blood serum double positive. Wassermann with the spinal fluid negative.

January 6, 1911.—On mercury and iodide (continued until May, 1911).

January 22, 1911.—Apparent improvement, up and about ward, assisting with light work. Pleasant, agreeable, enters games with other patients. Answers questions more readily and relevantly. Hallucinations and delusions less prominent with tendency to deny their occurrence.

January 29, 1911.—For a week past has denied absolutely the occurrence of hallucinations and delusions. To-day is confused, inaccessible and answers are irrelevant in the extreme. Condition very like that on admission excepting that excitement and motor unrest are not now so evident. He is dull, generally apathetic and lethargic, at times is apparently happy, complacent, even euphoric; occasionally will become irritable and speak quickly as though angered. Auditory hallucinations very prominent; God continually talks, directing and advising him, he himself is God, etc. Is oriented for time, place and persons (has learned no names since here). Was before clinic on the 26th and repeats correctly some of the remarks made at that time. No insight. Pupils unchanged.

March 4, 1911.—Continues about the same. Occasionally for a few days has a period of betterment during which he denies the presence of delusions or hallucinations.

April 3, 1911.—Slight improvement, more active and interested, though generally unoccupied. Happy and satisfied, no complaints or requests. Makes many facetious remarks. Slight reaction to direct light in left pupil. Otherwise no change.

June 2, 1911.—Intramuscular injection of .6 gm. salvarsan.

June 20, 1911.—Dull, stupid, indifferent and lethargic, more than ever before. Never has anything to say, idle all day. Hallucinations as before.

September 28, 1911.—Partially oriented, no insight, apathetic and dull. At times shows emotional instability, laughs in a foolish, senseless manner. Verbigeration. Hallucinations and delusions continue. Small sums in addition, subtraction, etc., done accurately and without delay. Left pupil reacts slightly to direct light.

December 10, 1911.—Continues unchanged.

II. C. 18677. * Male age 25. Antecedents negative. Early life unimportant, always of quiet, reserved and sensitive disposition. Collegiate education and since graduation a newspaper reporter. Three years ago (1908), syphilitic infection for which he was treated for two years with mercury and iodides. Never indulged in alcohol or drugs.

About July 1, 1910, complained of feeling tired, that he could not concentrate his attention upon his work, became drowsy and sleepy during the afternoons and was troubled with insomnia at night. This condition became more aggravated, the least exertion caused the greatest fatigue and general feeling of lassitude, efficiency in work rapidly decreased and he was discharged from his position after repeated demotions. These symptoms had not attracted the attention of members of the family until his discharge. On the morning of July 27, 1910, being awakened by his eleven months' old child coming to his bedside, he seized the child and threw it against the opposite wall inflicting fatal injuries. After this act, without saying a word, he apparently fell asleep. A few minutes later arose and started to leave the house in his night clothing, but was prevented and while awaiting the arrival of the police, sat quietly in a chair and said nothing. He was admitted to the Government Hospital six hours later.

On admission, somewhat restless and uneasy, would pace about the ward for a time, sit down for a few minutes, then walk again. Appeared somewhat dazed and confused, at times and later in the day when informed that his child was dead, he displayed but very slight emotional reaction, said he knew nothing about it and did not seem to appreciate what was told him. Immediately after this he gave a good anamnesis in a quite matter of fact manner. It was noteworthy that his idea of time relation for recent events was much impaired. There is a period of

* Anamnesis and notes in this case of which the following is an abstract, were made by Dr. Bernard Glueck.

amnesia extending from about three o'clock in the morning (at which time he recalls having performed an errand for his wife) till he was sitting downstairs after the infanticidal act waiting for the police. Shortly after giving his history he became much confused again and when asked gave the date as August 26, 1910. "How long have you been here? Since July 25, 1910. How long a period would that make? One month—oh, no, one day—this is August 10, 1910." At this point a newspaper clipping concerning the affair was read to him without producing the least emotional reaction.

July 28, 1910.—Slept but little last night—quiet. At five-thirty this morning nearly killed another patient by strangulation. When interrupted in this procedure, became quiet and showed no realization of its occurrence. This morning is oriented for person and place, although he knows the names of none of those about him. Is temporarily disoriented, seems to have no appreciation of time. Does not believe there exists any mental disorder. Is quite dull, retarded and appears absorbed—questions must be repeated emphatically to receive any attention and frequently there is no answer. $7\times6=76$ (30"), $3\times3=9$ (25"), $8\times4=$ (no answer). In a prolonged interrogation there are no answers, the patient stands stupidly staring into space. After a few minutes he begins to answer questions slowly, incompletely and dreamily. After about ten minutes, his whole demeanor changes, he answers questions promptly and relevantly, says he has no recollection of the homicidal attack in the early morning, is surprised when told he has not answered everything asked of him. Now promptly says $3\frac{1}{2}\times6=21$; to a problem involving the addition of several numbers and subtraction from the whole he answers correctly and promptly and rapidly subtracts sevens from one hundred with only two errors. About an hour after this assaulted an attendant, after which he was put to bed, and though he slept but little, remained quiet.

July 29, 1910.—Physical examination—well nourished, head disproportionately large (antero-posterior 19.8 cm., transverse parietal (?) 16.9; bitemporal 16; mento- and antero-frontal 24.7). Musculature well developed and of good tone. Voluntary movements rapid and accurate. Grip—both hands 39 kg. No atrophies or hypertrophies. Gait unimpaired, station and co-ordination good. Patellar reflexes increased. No Babinski, no ankle clonus, plantar active and diffuse, cremasteric and abdominal faint. Sensation—No subjective disturbances, pin pricks felt and localized all over body, differentiates head from point readily, stereognosis unimpaired, localizes touch of hairs, distinguishes readily between cold and warm all over body. Co-operates well throughout examination. No periods of confusion as yesterday; was later in the day transferred to the criminal department of this hospital. After this seemed in good spirits, talked normally to the nurses showing no emotional reaction when speaking of the death of his child. Accurately oriented in all respects, knew when he came to the hospital, who brought him, why he was brought, etc. Later in the day showed transient periods of confusion,

would appear dull, stupid and dazed, did not recognize those about him—this condition quite similar to that noted yesterday.

July 30, 1910.—Condition unchanged. Variable during the day, at times happy, buoyant, whistling or humming some tune, talking clearly concerning his status. Again in a few minutes is apparently confused and quite bewildered, asks where he is, what he has done, etc.

July 31, 1910.—Continues unchanged. (See table of spinal fluid examinations at end of case record.)

August 1, 1910.—Uniformly dull, quiet and stupid throughout the day, appetite poor since admission. Sleep somewhat disturbed.

August 2, 1910.—Urine—specific gravity 1028, acid, trace of albumin, no casts. Wassermann with blood serum negative.

August 4, 1910.—Complains of not sleeping well, appetite improved. Has been quiet, taking more interest in surroundings, less frequent occurrences of confusional periods.

August 18, 1910.—Legally adjudged to be of unsound mind.

September 1, 1910.—Has continued quiet and orderly since August 4, 1910, alert and active during the past two weeks, reads the papers, associates freely with others and has become acquainted with all others on his ward. No delusions or hallucinations are known to have been present at any time during illness. He sleeps well, has a good appetite and makes no complaints. No abnormal mental or physical symptoms. At no time has he appeared to appreciate the gravity of his homicidal act and apparently this has never caused him the least worry or depression.

October 23, 1910.—Wassermann with blood serum double positive.

November 5, 1910.—During parts of August, September and October, received mercury and iodides. Condition continues unchanged. Malarial infection (crescent forms found in blood).

November 24, 1910.—Wassermann with blood serum double positive.

December 23, 1910.—Wassermann with blood serum double positive.

February 16, 1911.—Intramuscular injection .6 gm. salvarsan.

March 1, 1911.—Wassermann with blood serum *spur.*

March 4, 1911.—Continues unchanged. Pupils equal in size, and react normally to light directly and consensually. The left is very slightly irregular in outline.

March 8, 1911.—Wassermann with blood serum negative.

March 30, 1911.—Wassermann with blood serum negative.

May 24, 1911.—Wassermann with blood serum *spur.*

June 14, 1911.—Since September 1, 1910, there have been observed no evidences of mental disorder, other than that he has never shown any adequate emotional reaction to the circumstances. No intelligence defect demonstrable. Discharged recovered.

The results of the examinations of the spinal fluid are given collectively in the following tabulated form, so that a better idea of the changes may be more easily obtained.

SPINAL FLUID—DIFFERENTIAL (per cent).

	Wassermann	Noguchi	Cells	Lymphocytes	Large Mononuclears	Plasma cells
1. July 31, 1910.....	—	++	129	94	2.5	.25
2. August 24, 1910...	—	++	52	97	1.75	.25
3. Oct. 19, 1910.....	—	+	24	93	2.	3.5
4. Nov. 23, 1910.....	—	+	18	90	4.5	3.0
5. Dec. 21, 1910.....	—	+	10	93	4.	2.0
6. Feb. 13, 1911.....	—	+(very weak)	14	94	5.5	—
7. March 28, 1911...	—	?	10	96	4.	—
8. May 22, 1911.....	—	—	10	94	5.75	—

Other forms including Körchenzellen, macrophages, polymorphonuclear and unclassified cells are not given here—they constitute a very small percentage of the total and are only noted as present in the fourth and fifth examinations.

III. E. 19198. Male aged 43 years. Other than that father was alcoholic, family history is unimportant. Birth and early life negative, obtained a meagre education passing through fifth grade. Denies syphilis, married in 1903, no pregnancies. Fourteen years ago (1897), working as a lumberman sustained an accident as result of which lost right leg below knee. At that time began to use morphin and has continued as a habit since then. Since this accident has been employed as a clerk. Denies alcohol and drug addictions other than morphin.

For some months prior to admission here, his comrades had noted a change in his general conduct, also a decreasing working efficiency which became more evident during the last few weeks. The wife states that his trouble developed very suddenly—he became wildly excited, disturbed, talkative, over-active, had many expansive delusions and had to be removed to the City Detention Hospital that same evening (May 22, 1911).

May 29, 1911.—Admitted to the Government Hospital for the Insane. Able to give a fair account of past life. Is oriented, says he is "crazy" and that this is due to the fact that he has been abruptly deprived of morphin. Has many expansive megalomanic ideas, is strongest man in United States, has invented flying machines, has twenty-five thousand building lots, plans to distribute these among the poor, to provide for their support, education, etc.

Physical examination showed him to be well nourished, abdominal and thoracic organs negative. Right leg amputated below knee. Knee jerk diminished, plantar increased, cremasteric and epigastric normal; ulnar, radial, triceps and biceps normal. Co-ordination good; touch, taste and smell normal. Right pupil larger than left, both somewhat dilated, react sluggishly to light, but normally to accommodation.

May 31, 1911.—Urine examination—specific gravity 1030, acid, no casts or albumin.

June 7, 1911.—Continued excitement since admission, is talkative and voluble, rambling and disconnected spontaneous production; no adequate

insight; rather elated, happy and playful, laughingly says he is insane, but soon denies this and claims that he has been arrested through "a put up job" and demands his immediate release. Megalomanic tendencies expressed in limitless expansive ideas. Especially during the night is very noisy, threatens and attacks the attendants, claims that persons enter his room and attempt to murder him. No febrile disturbance since admission. Wassermann with spinal fluid negative. Fluid clear, protein increased. Noguchi positive. Cells 32 per cmm. Lymphocytes 87 per cent; large mononuclears 10 per cent; plasma cells 75 per cent; Körchenzellen .50 per cent; macrophages .25 per cent; polymorphonuclears .50 per cent; unclassified forms 1 per cent.

June 8, 1911.—Receiving mercury and iodides.

June 11, 1911.—Oriented, memory good, no insight, elated, talkative, active, megalomanic tendencies persist unchanged. Stories of seventy-five to one hundred words are repeated quite completely, repeats numbers of six digits forwards and backwards correctly ($100 \div 6 = 16\frac{2}{3}$); small problems answered correctly. Days of the week and months of the year given forwards and backwards correctly. Names important holidays and gives their significance and is conversant with more important current events. Attention is somewhat difficult to gain but can be fairly well held for periods of short duration; spontaneous logorrhea with little external distractibility.

June 13, 1911.—.6 gm. salvarsan intramuscularly.

June 20, 1911.—Pupils equal in size, regular in outline, no light reaction demonstrable. Secluded in a room because of noisiness and destructive tendencies. Psychomotor excitement has continued unabated since admission.

July 10, 1911.—Considerably improved, quiet, during daytime is in day room with other patients. Denies he is insane, homicidal threats if he is not immediately released. Excitement episodic in occurrence.

August 1, 1911.—Orientation unimpaired, still quiet with episodic excitements continuing daily. Possible auditory hallucinations at night but these are very indefinite, vague and doubtful. Delusional tendencies as formerly.

August 30, 1911.—Spinal fluid clear, protein increased, cells 41 per cmm. Differential count practically same as on June 7.

September 5, 1911.—Excitement episodic and fulminant in character.

October 10, 1911.—Very much excited, disturbed, noisy, screaming all through day and night, quite inaccessible.

November 3, 1911.—For two weeks past very much decreased motor excitement. Is up and dressed about ward, careful of personal appearance, tidy in habits. Still talkative, elated and megalomanic, very exaggerated ego, is a god, can understand all foreign languages, the sun shines and it rains as he wills, can converse with others by thought transference without spoken language. No insight.

November 8, 1911.—Spinal fluid clear, protein increased, Noguchi positive, Wassermann reaction weak to positive ($\times$ to $+$), 45 cells per cmm.

November 9, 1911.—Wassermann with blood serum negative to *spur*. Has been on specific treatment (mercury and iodides) practically continuously since June 8, 1911.

November 15, 1911.—Again very great psychomotor excitement, noisy, destructive, uncleanly in habits. Otherwise no change.

IV. N. 18993. Male, aged 74. Family history negative. Birth, infancy and childhood normal. Common school education. Since the age of fourteen has worked in various positions as laborer and more recently as clerk. Denies syphilis, alcohol or drug addiction. Married in 1890, three children, alive and well, several miscarriages. Thirteen years ago (1898) attempted to enlist in the army but was rejected because of an ulceration on right cornea. This is the first record of eye trouble. Since then there have been many recurrences, both eyes have been involved and he has received in treatment mercury, iodides and atropin for about six or seven months of each year since then. Last ocular trouble culminated in practical blindness and removal from his office on September 19, 1910. From then until December, 1910, he was treated in a darkened room.

The wife first noted that the patient evidenced suspicion of her fidelity on January 1, 1911. This rapidly became more prominent, he accused her of having improper relations with other men, followed her about the house from room to room watching every movement, and in many ways attempted to discover her supposed improprieties and to establish evidence of his beliefs. This condition continued for a week, becoming progressively more intense, until he attacked his wife, and she with her children made their escape from the house during the night. He was taken to the City Detention Hospital where, after eight days' observation, he was discharged as not insane. On his return to his home, his attitude toward his wife was even worse than before, in the various commonplace noises about the house, he recognized signals which his wife made to some man. After a few days, the family again were forced to leave him but in response to his entreaties with promises of better behavior they consented to return. No sooner were they within the house than he locked the doors, pulled the shutters and for four days following kept them there as prisoners—threatening to kill them all, accusing his wife of attempting to kill him, etc., until the family again escaped and he was taken to the City Detention Hospital a second time on February 1, 1911.

February 7, 1911.—Admitted to the Government Hospital. On admission he gave a fair anamnesis but showed a marked discrepancy in dates and denied flatly all knowledge of having entertained any ideas of suspicion concerning his wife, or having ever threatened to injure her. At the same time, could tell accurately of many incidents which had occurred during the period of several weeks past, such as his family leaving him, his admission and the circumstances attending them to the City Detention Hospital. Can give but inadequate idea of amount of medicines he has used for his eyes, but is positive he has never taken more than was proper as it was always used under a physician's direction. Regarding his recent

troubles, he admits by way of explanation that possibly he may have had a "delirium" but that now he is happy and contented to have recovered so soon. In fact he is almost euphoric at times, looking forward to his discharge within a few days. No trace of irritability, oriented in all details, no evidence of hallucinations or delusions elicited. Physical examination shows some emaciation, corneas clouded and opaque—the left showing an active ulcerative process; condition of pupils indeterminate. Some glandular enlargement, circulatory and respiratory systems normal, dark purple, copper colored cicatrices on left leg near ankle. Tendon reflexes exaggerated, abdominal absent, plantar present, no Babinski, cremasteric present, no ankle clonus, gait, station and co-ordination normal. Vision much impaired, hearing normal, sensation for light and heavy touch and pin pricks normal. No gross intelligence defect demonstrable. No insight.

February 8, 1911.—Urine examination, specific gravity 1026, acid, no casts or albumin.

February 13, 1911.—Spinal fluid clear, no protein increase, Noguchi negative, Wassermann reaction negative. Cells per cmm. 1.

February 16, 1911.—Receiving mercury, iodides and atropin.

February 20, 1911.—No febrile disturbances since admission.

February 23, 1911.—By routine court proceedings committed to hospital. On his return from court, there was noted a marked change in his general reaction, he became inaccessible, non-committal and sarcastic.

March 31, 1911.—Continues inaccessible, maintains that he is not insane.

April 21, 1911.—Continues unchanged. Believes he is being kept here for some ulterior motive, that the physician is prejudiced against him, evasive and non-committal. Has little to say and associates but very slightly with others.

May 1, 1911.—.6 gm. salvarsan intramuscularly. Previously has repeatedly refused to receive this treatment as he believed it was to be given to injure him.

May 4, 1911.—Urine examination, specific gravity 1024, acid, no albumin or casts. Complains of pain on micturating.

May 11, 1911.—Marked local ocular improvement and also evident change in general reaction toward physicians and others. Asserts that he is fully satisfied with everything. Corroborates anamnesis as formerly given but still shows many discrepancies for dates of more recent occurrences, acute recollection of everything since admission to the hospital. Mentions in minute detail many trivial happenings which occurred during the months prior to admission here, but denies all recollection of any difficulties with his family. When various acts during this period are mentioned to him, he believes it is to insult him and adds that he could not possibly have done such things as he was entirely helpless owing to his poor vision and could hardly get about the house alone. He does not believe that he is or has been insane, but admits that possibly there may have been a transient period of "absent-mindedness." He grasps at any pretext suggested as explanatory of his conduct and following

such a suggestion he claims he had indulged in alcohol from December to February, using this in diluted form to alleviate the excessive pain. This, he says, he himself purchased at a saloon a few doors away, took probably about a half a pint a week. When reminded that he has just a few minutes before stated that he was entirely helpless and could barely make his way about the house, he hesitates momentarily and explains that the neighbors got the alcohol for him. Although outwardly he pretends to be willing to talk concerning himself, he is actually still inaccessible, guarded and suspicious, refusing to talk if a stenographer is present or even if notes are made. He is now looking forward to his release in the next few days through habeas corpus proceedings.

May 24, 1911.—Wassermann with blood serum double positive.

May 25, 1911.—Appeared in court to-day, was adjudged to be of unsound mind and recommitted.

June 1, 1911.—Small gumma on left cornea.

June 2, 1911.—.6 gm. salvarsan intramuscularly.

June 8, 1911.—Local ocular improvement evident, no especial change in general reaction.

June 29, 1911.—Wassermann reaction with blood serum double positive.

August 1, 1911.—Ocular improvement, no disturbance of orientation since admission, memory for events since admission to hospital accurate in minute details, more friendly and agreeable in general reaction, not so aggressive or sarcastic, otherwise no change.

October 10, 1911.—No essential change. For the past four months has remained alone in his room voluntarily, will not associate with others. Hints that he is being kept here through prejudice only and not because he is insane.

November 15, 1911.—Wassermann with blood serum double positive.

November 16, 1911.—There is a marked general improvement since receiving the salvarsan. This the patient admits and says he never felt better in his life. Marked gain in weight. Although always pleasant and courteous, he denies all recollection of any domestic trouble, says he prefers not to talk of these subjects but is not so openly evasive or suspicious as formerly.

Eye condition has not responded well to treatment. Examination (Dr. Kimball) shows the following: "Luetic keratitis and irido cyclitis, blepharitis, conjunctivitis, no muscular anomalies. Right, quiescent and opaque. Left, active, opaque with deposits on internal corneal surface. Pupils, unequal, more or less bound down to lens, iridal adhesions." Vision is so impaired that patient can only with difficulty make his way about unguided. Since admission has received mercury and iodides continually, excepting for brief periods when the mercury was discontinued because of beginning salivation. Judgment is very much impaired and insight into his condition is quite inadequate. He is very anxious to be discharged from the hospital as now he thinks he is able to obtain his old position as clerk. Considering his present condition, he is abnormally happy and contented. Throughout his stay here he has been visited

frequently by members of his family and friends, always receives them kindly and appears to derive considerable pleasure from these visits. No hallucinations of any type have been observed since admission to this hospital. How great is the actual degree of amnesia of his delusional experiences is indeterminate, innumerable discrepancies have led to the opinion that this amnesia is largely assumed. At no time during the course of his illness have there occurred any focal signs of cerebral disorder, no convulsions or isolated periods of unconsciousness, no pareses or paralyses. There is now no evidence of gross intellectual defect other than seen in deficient judgment and critique of his own condition and status and some memory defect for remote events.

When we come to look over these case records, we find many interesting features which present themselves for consideration and evaluation. In the first case, we have to deal with an individual in whose family history are instances of alcoholism and mental disturbance. At the age of twenty, after a three or four years' period of decreasing laboring efficiency, there occurs a mental episode with auditory hallucinations and delusions of persecution, his reaction to which is to give up his position and to wander as a vagrant for several months. After this a period of a dozen years' efficient military service during which he received promotion on the basis of a satisfactory mental examination, all of which precludes the possibility of any mental deterioration. Then there is the head trauma, the valuation of which as an etiologic factor is quite difficult. Apparently this cannot be given a great deal of weight as his military service continued efficient for ten years afterwards. Thirdly, there is the syphilitic infection, not originally treated, and not now reacting to a treatment as shown by the continuance of a positive Wassermann reaction with the blood serum. Lastly, a history of alcoholism extending over a number of years, at times excessive. The first mental disorder of which we have a documented record occurred in his early thirties (January, 1910), characterized by auditory and visual hallucinations and delusions of persecution. By the army surgeons this was first thought to be an attack of delirium tremens but subsequently ascribed to the head trauma. Four months later (May, 1910), following the death of a sister, reactive depression and excessive alcoholism, the present illness is ushered in with hallucinatory and delusional experiences. At the end of several months' observation he is considered by the army surgeons to be suffering from chronic alcoholic dementia and is transferred to

the Government Hospital. During the past year, there has been observed a vacillating intensity in the hallucinatory and delusional experiences; in the early months there was a slight excitement with motor activity and restlessness, varying affective states of elation, depression and indifference, always superficial in character, attention disorders, fallacious sensory perceptions of a somewhat delirioid character. With slight exception a progressively advancing demential process more evident to-day in the indifference, apathy and state of mental torpor than in the disproportionate, though easily detected intellectual impairment. On the physical side no history of convulsions or periods of unconsciousness (other than that associated with the head trauma), a general loss of muscle tone but no pareses or paralyses, no atrophies, no speech defects, an uncured syphilis, persistent pupillary disturbances and thyroid enlargement. What conclusions may be drawn? Paresis may very probably be excluded, the trauma is unimportant, alcoholism secondary. The most probable explanation is found in a cerebral syphilis. But most certainly this is not a simple, uncomplicated case. The possibility that the first mental disorder at the age of twenty may have been of a precox character upon which the syphilis has been superimposed must be borne in mind. In some points at least, this case is very similar to those of Czarniecki (9).

Without laboratory aids, it is very doubtful if even an approximately correct diagnosis of the nature of the mental disturbance in the second case could have been made. The appearance of indubitable abnormal mental symptoms came abruptly following a prodromal period of several weeks, during which symptoms of a neurasthenoid character had their onset and ran a course of gradually increasing intensity. Then a brief period of amnesia introducing a phase which persists for a few weeks during which the mental state is variable, periods of confusion, bewilderment and transient amnesic states alternate with those during which there is little or no evidence of clouding of consciousness. All of these psychotic signs disappear very rapidly leaving no demonstrable intellectual defect. There is no history or record of any focal signs, no pareses or paralyses, no convulsive attacks.*

* According to those who would consider amnesia due to a lesion of the "memory centre" this might be looked upon as a mental equivalent of a physical condition dependent upon a focal cerebral lesion.

The possibility of paresis must be considered, but the constantly negative Wassermann reaction in the spinal fluid together with the diminishing grade of pleocytosis and also the response to specific medication, as shown by the disappearance of a positive Wassermann in the blood serum, are more in favor of a syphilitic than parasyphilitic process.

In Case III the diagnosis of a mental disorder dependent upon cerebral syphilis cannot be determined with certainty at the present time. Not only must paresis be kept in mind, but the possibility of the coincidence of the two processes cannot be disregarded in this case. What part the morphin has taken in the coloring of the picture, especially at the time of onset, is uncertain. The history of addiction to this drug is not entirely concise, and no evidences of morphinism are noted. At all events, there has been no essential change in the symptomatology since the withdrawal of the drug, and it can be disregarded with a fair degree of probability. The spinal fluid pleocytosis indicates some organic process, the negative Wassermann is more in favor of syphilis, and also the tendency to disappearance of the positive Wassermann reaction in the blood serum while under specific treatment, possibly may be considered to be more indicative of syphilis than parasyphilis. It is appreciated that conclusions based upon improvement from specific treatment are not final in themselves, and in this instance the change in Wassermann reaction is only partial evidence of the nature of the organic disease. Throughout the course of the illness there have been no convulsions or periods of unconsciousness and no physical signs of focal cerebral lesions. The interesting feature of the symptomatology is the psychomotor excitement of maniacal type—constant restlessness at times culminating in destructiveness and violence, exalted self-feeling, mental alertness and megalomanic expansivity. Delusional ideas are quite variable in content but uniformly reflect his own conceptions of his personal importance and ability. Fallacious sensory perceptions possibly may have occurred but this is more a possibility than a probability, they at no time have been definite and indubitable. No periods of depression have been noted in this case. It is not difficult to eliminate the purely affective psychosis here, the physical signs are sufficient to demonstrate that there is at least something more. It is possi-

ble, though rather remotely so, it is true, that a maniacal depressive attack may have been precipitated by the syphilis and through this agent the symptomatology rendered rather atypical in many points. The coincidence of the two cannot be said to be impossible. The evidence seems to favor the opinion that we have here to do with a psychosis of a maniacal type occurring as a result of cerebral syphilis.

In the consideration of the etiology of the mental disturbance in Case IV, three things are of importance—the eye condition, and the medication received on account of it; the possibility of alcoholism and finally syphilis. That the atropin or other drugs administered in treatment of the local condition had anything to do with the abnormal mental state seems quite doubtful. At least, continuation of such treatment while in the hospital has led to no reason for believing that such is the case. It would not be surprising that in the presence of some mental disorder otherwise produced the practical blindness should augment and intensify an existing paranoid trend such as has been manifested by this patient. It is believed that the alcoholism admitted by the patient is largely mythical, and that emphasis upon this feature by him was largely stimulated by advice of legal counsel prior to his last appearance in the courts in an attempt to effect his release. In favor of syphilis, there is evidence of an uncured syphilitic infection, in spite of very active and continuous antiluetic treatment, the Wassermann reaction with the blood serum continues positive. Also, this syphilis is active as evidenced by the ocular condition. Not only this, but it appears to be quite virulent and resistive to treatment. Further, with betterment at one time of the ocular condition, resulting from specific medication, the general mental attitude and physical condition of the patient improved. It seems that there is sufficient ground for assuming that we have here to deal with a paranoid state of an *Eifersuchswahn* type dependent upon cerebral syphilis.

Various mental symptom complexes have been described as characteristic of cerebral syphilis. The term " syphilitic psychosis " is not of recent origin. It is not because of its newness that it is deserving of attention, but rather because of the increasing prevalence of its usage, and because of the controversy concerning its propriety and appropriateness. It may be said that the term

has, within the past few years, been *re*-discovered. Our clinical descriptions of the psychotic states arising as a result of brain syphilis show little improvement over those made nearly a half century ago. The principal types recognizable to-day were then described (Wille, 13). It is true that our conceptions concerning syphilis as a disease have been remodeled and that our psychiatric nomenclature has been subjected to cinematographic variations. The mental symptom complexes, however, are the same and it is largely due to the more recently forced recognition of the pathologic potential of syphilis, acting upon the central nervous system to produce disturbances of function, that the term syphilitic psychosis has come to occupy its present prominent position.

It is quite apparent that not too definite or fixed limitations have enclosed the group of cases thus rubricated. Nor can this be considered at all surprising in view of the fact that until recently the history of specific infection, in most instances, must of necessity be obtained from the patient—a most unreliable source of information regarding this particular infection. This difficulty is illustrated in the last two cases of this paper. Although admitted that syphilis is a most important agent in the production of varied abnormal mental conditions, it has been denied that there existed any characteristic mental picture, any syphilitic psychotic entity. Aside from ***hypochondria syphilitica*** and the progressive deterioration, Wille (13) looked upon all other symptom complexes which might be found associated with brain syphilis as possessing absolutely nothing characteristic. Salager (7) after going over his cases (giving no details of individual case records) thought that we had better renounce with Magnan those "*conceptiones seduisant dans leur simplicité . . . qu'une saine clinique repousse,*" and concluded that in so far as certain confusional states are concerned there is no justification for the term syphilitic psychosis. Whether or not this attitude is warranted is perhaps very doubtful—certainly not until further observations derived from the use of more modern methods have offered more evident reasons than have been presented. On the other hand, have not errors been made in the opposite extreme? Has not the attempt to recognize a characteristic form among the diseased mental states incident to cerebral syphilis been made with a zeal not warranted by the facts in our possession.

It is more probable that the pendulum has swung unchecked to both extremes. We may safely speak of a syphilitic psychosis so long as it is regarded as a mental disorder associated with brain syphilis. In other words, this is a term expressing briefly our conceptions of the etiologic rôle of syphilis in the production of the mental disorder. However, as yet, it is most essential to keep constantly in the foreground the fact that not one of this group of mental disorders can be considered to present itself in any symptom complex characteristic of syphilis of the brain. We have seen that we may meet with paranoid and confusional states as shown in Cases II and IV, with excitements (Case III), and depressions, but we find nothing in the psychotic manifestations which proves their luetic origin. These mental disorders in these individuals might equally well have been due to other causes, recognizable or otherwise. It is largely due to our increased methodologic possibilities that we discover that syphilis has any relation with these abnormalities of mental activity and often even then it cannot be determined whether this relation is causal or accidental. Without such diagnostic aids there would have arisen no reason to suppose that syphilis had any etiologic relation to the mental disorder in Case II, and even with them there is left some doubt as to its importance in the fourth case. Concerning one point at least there has been a diapason of opinion —all are agreed that the ultimate result is a demential process. This intelligence defect has been especially emphasized by Ziehen (2) by whom cerebral syphilis is considered under the general caption of the defect psychoses. For the groups of cases which Ziehen recognizes clinically this may very well be, but this does not account for those cases in which the mental symptoms develop dependently upon a mild grade of syphilitic cerebral irritation such as may reasonably be supposed to exist in those cases described by Meyer (8). Apparently in these mild cases there is recovery and an appreciable defect would be difficult to demonstrate. In the second case here reported an intelligence defect is not demonstrable. Here it is to be remembered that possibly we have to do merely with the prodromata of those more destructive lesions subsequently to appear, following which the defect is more certain. What the subsequent life history of this individual may show is a matter for conjecture. Some of the cases presented by West-

phal (14), particular mention is made of the third, showed no intelligence defect during a period of several years.

Among the earlier works, attempts to delineate a characteristic abnormal symptom complex dependent upon cerebral syphilis resulted in the description of certain depressive and anxiety states, *e g.*, syphilophobia or a more generalized hypochondria, which were to be looked upon as prodromal phases of the syphilitic psychosis, the concluding picture of the series being a progressive deterioration. Besides this hypochondriacal introduction, it was recognized (Wille, 13) that the ultimate dementia might be preceded by an excitement, a delirium or mania. The important point is that these abnormal mental states presenting themselves early in the disease were looked upon as the initial symptoms, only states in a developing picture and not much of an attempt was made to segregate them as separate types of mental disorder characteristic of syphilitic processes involving the brain.

A more definite tendency in this direction is evidenced in the syphilitic neurasthenia described by Jolly (12) although he too, recognized that this neurastheniform reaction often paved the way for more or less serious forms of mental disease. The case of C. very well illustrates this type of onset but further shows that we had to deal with but a phase of the complete disease process. Although placing especial stress upon these psychoneurotic states, Jolly likewise recognizes the other types of mental disorder which may accompany luetic infection, that is the paranoid, amential and manic or delirioid states, speaking of these as the more severe symptom complexes. We do not have to deal here with the mild, depressive reactive types of mental disturbance developing in persons at the time of primal awareness of luetic infection but rather with those more aggravated states, during which there are complaints of headaches, transient and ephemeral confusional periods, fainting sensations, difficulty in recalling words and events, fleeting pains generalized in distribution, numbness in legs or general feeling of fatigue and exhaustion—the neurasthenic syndrome. There is quite apparently reasonable cause for doubting the existence of any such definite symptom complex bearing a causal relation to syphilis, excepting in so far as it may occur as an introductory phase as above indicated. It is indeed in this instance, a difficult task to

separate coincidence from cause. An outspoken neurasthenic attack in an individual having a predisposing tendency and an asymmetrical mental organization may no doubt be precipitated by a syphilitic infection. But the syphilis itself is not directly the prime factor—it is but secondary, merely an exciting agent. On the other hand, it is by no means infrequent that we meet with a neurasthenic onset in cases of cerebral syphilis and paresis. The examination of the spinal fluid and blood serum has been a reason for the numerical reduction of diagnoses of neurasthenia in the incipient states of such conditions. To separate a group of symptoms which occur as a prologue to a definite disease, to speak of this as an entity under the term "syphilitic neurasthenia" can however accomplish no possible good. Meyer (8) found no cases of syphilitic neurasthenia in the Jolly (12) sense among his series, and concluded that if it exists, it must at least be rare in occurrence. The material available in this hospital does not permit of any conclusions upon this point because only very occasionally are patients admitted showing initial or secondary luetic lesions.

Attempts to single out certain prominent features in the varied and multiform symptomatology of those psychotic states arising as a result of, or at least in connection with, luetic cerebral lesions, and to group these into the formation of a clinically recognizable symptom complex have not been infrequent. More recent perhaps has been the appearance of an endeavor to correlate certain of these symptom complexes with a definite anatomic picture—an endeavor which has in some respects partially been rewarded. At present, however, insurmountable difficulties present a barrier to such correlation and we find that with little certainty are we able to predict the pathologic condition from the clinical observation.

The older attempts to recognize and delimit types of mental disturbances associated with brain syphilis were to a degree frustrated by and encumbered with endless discussions concerning the identity of paresis and syphilitic pseudo-paresis—a discussion which has not entirely disappeared at the present day. The recent attempts along this line have resulted in the grouping of certain prominent symptoms into complexes which are supposedly more or less definitely demarcated. As has been mentioned previously, the depressed or hypochondriacal states and the demential process were commonly recognized and emphasized. The symptomato-

logic grouping of Kowalewsky (15) offers a fairly definite conception of the type distinction attempted. If we leave out of consideration his very lengthy remarks on typical and atypical paresis (syphilitic pseudo-paresis, lues cerebri diffusa), it is found that this division into types is but little different from that current to-day (16). Present tendency separates as a distinct type, the syphilitic pseudo-paresis. Kowalewsky recognizes the following divisions of mental disturbances dependent upon brain syphilis:

1. Syphilitic melancholia and hypochondria (the latter especially in the form of syphilophobia), with both of which is associated more or less deterioration.
2. Paranoia, an infrequent mental disturbance associated with syphilis, either the persecutory type of hallucinatory paranoia or the hypochondriacal paranoid syphilophobia.
3. Amentia, much more frequent than the syphilitic paranoia.
4. Acute psychoses with brain syphilis are not infrequent and may present themselves either in the form of delirium acutum or mania acuta.
5. Dementia, so frequent in brain syphilis that almost all writers agree that it is the characteristic symptom of all mental disorders associated with syphilitic alterations in the brain.

In the first is to be seen our current neurasthenic type, in the second evidently the paranoid type. The amentia includes those acute, semi-delirioid, confusional states with exquisite hallucinatory disturbances while in dementia we find the end results. There may be added the apoplectic type. From analogy we may expect that there may exist varied combinations of parts of these more or less definite symptom complexes, that one may shade into another, that during the course of the disease these arbitrarily erected forms may substitute one for the other, or occur in alternation. There may thus be maniacal outbreaks occuring in a stuporous phase or as phasic interpolations in the acute confusional, hallucinatory states. On this account it may appear of little practical use to attempt to delimit such artificial symptomatologic groups. Yet this division is not entirely without clinical value because undoubtedly there do occur cases as IV of this series, in which, for instance, the paranoid trend is so distinctly prominent that it deserves especial recognition. In the first case the situation is somewhat different. Here it may be that the syphilis has acted as the *auslösende Moment* bringing to the surface sunken precox tendencies. However, unless the limitations

set upon the usage of these terms are remembered, unless it is constantly recognized that we are dealing with more or less arbitrarily erected divisions, an erroneous viewpoint will be attained.

A further difficulty with which the clinician is often confronted is the determination of the exact value which is to be attributed to syphilis as an etiologic agent. Especially is this true at the present time, when an unsuspected syphilis is revealed by serologic methods. If no other coexistent factors are discovered that complicate the problem the difficulty is proportionately decreased. However, it happens not too infrequently that we meet with extremely complicated conditions, cases wherein what may be important features are necessarily left vague and indefinite because possibly our anamnesis is not as complete as might be desired. Thus questions arise, which for a reasonable, satisfactory answer require a careful balancing and apportionment of due weight to each feature, and quite often the anatomic examination must be made before the correct solution can be reached. In selecting the four cases for this presentation these various doubts and difficulties have been emphasized. Although rather complex etiologic situations have been brought out it has not been shown that these cases were in any way atypical in the mental symptomatology. The fact is that we do not possess a mental symptom complex pathognomonic of syphilis and therefore cannot reasonably speak of atypical forms.

In a general résumé it may be said that this study has brought out again the following points:

1. Syphilis may act as a modifying force upon a psychosis developing upon the basis of a formerly active mental disorder.

2. Many types of psychoses may be simulated by mental disorders caused by syphilis.

3. There is no mental symptom complex characteristic of syphilitic disease of the nervous system.

4. Paralyses, pareses and convulsive episodes may be absent in cases when mental disturbance is due to syphilis.

5. An intelligence defect of demonstrable extent is not an invariable accompaniment of cerebral syphilis.

6. The term syphilitic psychosis is to be used in the broadest sense to express the idea of the etiologic rôle which syphilis bears to the various psychotic states which may owe their origin to it.

REFERENCES.

1. Hübner: Zur Lehre von der Lues Nervosa. Berlin. klin. Wochenschr., 1906, XLIII, 1448.
2. Ziehen: Psychiatrie. 4th Ed., Leipzig, 1911.
3. Schroeder: Luetische Erkrankungen des Zentralnervensystems. Med. Klin., 1910, VI, 2035.
4. Sträussler: Ueber zwei weitere Fälle von Kombination cerebraler, gummöser Lues mit progressiver Paralyse nebst Beiträgen zur Frage der "Lues cerebri diffusa" und der "luetischen Encephalitis." Monatschr. für Psychiat. und Neurol., 1910, XXVII, 20.
5. Glikin: Ueber den Lecithingehalt bei Degenerationen im Zentralnervensystem. Biochem. Ztschr., 1909, XIX, 270.
6. Peritz: Ueber das Verhältniss von Lues, Tabes und Paralyse zum Lecithin. Ztschr. f. exper. Path. und Therapie., 1908, V, 607.
7. Salager: Syphilis et Confusion mentale. L'Encephale, 1907, II, 103.
8. E. Meyer: Untersuchungen des Nervensystems Syphilitischer. Berl. klin. Wochenschr., 1907, XLIV, 943.
9. Czarnicckí: Démence précoce et Syphilis. Arch. Internat. de Neurol., 1910, 7s, I, 242, 305.
10. Graeter: Dementia præcox mit Alcoholismus chronicus. Leipzig, 1909.
11. Costantini: Observations cliniques sur la Syphilis cérébrale précoce et maligne. Nouvelle Iconogr. de la Salpêtrière, 1910, XXIII, 286.
12. Jolly: Syphilis und Geisteskrankheiten. Berl. klin. Wochenschr., 1901, XXXVIII, 21.
13. Wille: Die Syphilitischen Psychosen. Allg. Ztsch. f. Psychiat., 1871–2, XXVIII, 503.
14. Westphal: Manisch-depressives Irresein und Lues cerebri. Allg. Ztsch. f. Psychiat., 1908, LXV, 829.
15. Kowalewsky: Geistesstörungen bei Syphilis. Allg. Ztsch. f. Psychiat., 1893–4, L, 40.
16. Kraepelin: Psychiatrie. 8th Ed., Bd. II, Leipzig, 1910.

THE RELATION OF GASTRO-INTESTINAL TOXEMIA TO CIRCULATORY HYPERTENSION IN THE MANIC-DEPRESSIVE FORMS OF INSANITY.

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"Some forms of insanity are caused by products formed by the abnormal transformation of food and body material."

The above interesting statement is to be found in a special U. S. Government bulletin entitled "Principles of Nutrition and Nutritive Value of Food."[1]

The theory of auto-intoxication as a decided ætiological factor in many forms of insanity, especially melancholia, has been so frequently discussed that it has become a postulate, though but little real experimental work has been done.

As yet the information regarding the problems of auto-intoxication is meagre notwithstanding the scientific work of recent years. Taylor[2] very lucidly points out this and the difficulties of the various problems of auto-intoxication, and ably discourages the ready application of the auto-toxic theory, which is so aptly applied to many symptom groups the actual ætiology of which is unknown. His plea is for closer and more scientific investigation, and not a slip-shod method of casting all puzzling cases, having symptoms referable to the gastro-intestinal tract, into the auto-toxic puddle.

We do know, however, that auto-intoxications occur associated with the various forms of metabolism. This necessarily entails a perversion of the normal functions of metabolism, and the formation of deleterious chemical compounds, which has its sequel very often in disturbances of the nervous system.

We are all acquainted with the headaches, the insomnias, and even acute confusional insanities, due undoubtedly to an over-balancing of the metabolic scale.

Clinically we see the headaches disappear, the insomniacs sleep, and the confused become clear, after thorough elimination and the rational application of the principles of diet.

Undoubtedly we may have as a result of serious disturbances of normal metabolism, the formation of chemical substances which through their action on the vaso-motor centres, and more especially the splanchnics cause either a *lowering* or *elevation* of the general blood pressure.

Now, since the cerebral circulation is entirely dependent on the general blood pressure, inasmuch as the cerebral blood vessels are without vaso-motor control,[3] it is manifest that any substance affecting a lowering of general blood pressure would result in a lessened supply of blood to the brain; and conversely any substance affecting an elevation of general blood pressure would increase the supply of blood to the brain.

Such a substance, to act, must assuredly act through the blood stream, the blood itself being the means of carrying the toxic material to the vaso-motor centres. As it flows through the cerebral blood vessels it may have a still further selective action, and, if not originally causing high blood pressure by irritation of the vaso-motor centres, may stimulate the pituitary body to great activity and thus raise blood pressure; or inhibit the secretion from the cells covering the chorioid plexuses; or the opposite may obtain, the stimulation of the chorioid cells and the inhibition of the pituitary secretion.

It is well known that pituitary extracts cause a pronounced increase in blood pressure, mainly through constriction of peripheral arterioles, especially marked in the vessels of the intestines and spleen.[4]

Not so well known is the fact that a substance is secreted by the cells overlying the chorioid plexuses which has power to lower blood pressure. This fact was announced by Kramer[5] after a series of experiments had been made by injecting extracts of the chorioid plexuses into the circulation of dogs and noting the fall of blood pressure in each instance. Also was noted marked fall in blood pressure in a dog which had had injected into its jugular vein 5 cc. of cerebrospinal fluid obtained from a case of delirium tremens. This latter experiment *suggesting to me* that possibly the cerebrospinal fluid from a melancholiac would raise blood pressure if injected into the circulation of a dog, and that possibly the cerebrospinal fluid from a maniac would lower blood pressure if injected into the circulation of a dog; thus in a way prov-

ing that the pituitary body and the chorioid plexuses are important factors, or are at fault, in the high blood pressure of melancholiacs and the low blood pressure in maniacs.

What could be more plausible, if the above should prove to be facts, than to explain the excessive secretion of the pituitary body and the inhibited secretion of the chorioid plexuses or the contrary, by the action of deleterious chemical substances in the blood stream which had been formed from perverted metabolic functions? Kramer in the same article states that the extracts from the pituitary body and from the chorioid plexuses tend to counteract each other.

In mania we have a low blood pressure, and in melancholia an elevated blood pressure. On return to a normal mental state we note in manias a more or less gradual rise to the normal; and in melancholias a more or less gradual, occasionally sudden, fall to the normal. In acute mania we more often have elevated temperature than in melancholia, which may be explained by applying Janeway's[6] idea:

> "The accumulation of blood in the abdominal veins which results from extreme loss of vaso-motor tone, naturally affects the blood distribution markedly, and lessens the amount of heat given off from the surface of the body, thus increasing fever."

With comparative frequency deaths occur in acute mania. Every alienist has seen such. The death certificate usually reads some form of "heart failure," when in reality they are, no doubt, in the majority of instances, due to paralysis of the vaso-motor centres as a result possibly of a severe toxic condition.

Recent investigations[1] tend to prove the presence in the blood of the insane of definite chemical substances which are capable of demonstration by biological methods, affording a possible means of diagnosis between the various psychoses. Further reports along this line will be interesting.

All this: the power of the pituitary body to secrete a blood pressure raising principle, and the ability of certain cells covering the chorioid plexuses to secrete a blood pressure lowering principle, together with the presence in the blood of definite chemical substances produced by abnormal functions of metabolism, would tend rather to support the toxic or even auto-toxic theory of the origin of at least mania and melancholia.

Macpherson[9] mentions the possible origin of many cases of acute mania as auto-intoxication. Melancholia has long been put into the auto-toxic category, but mania has been slow to jump in.

Nearly every case of mania or melancholia will give a clinical history of dietetic excesses over a long period, associated with various troublesome gastric and intestinal symptoms from time to time. The heavily furred tongue, foul breath, and constipation is the common accompaniment of these cases.

Of great interest are the reports of Barnes on the examination of the blood[9] and metabolism[10] of two cases of dementia præcox presenting acute phases alternating with "well" periods. He noted a hyperleucocytosis coincident with the onset of the abnormal phases; also the abnormal phases were marked by high blood pressure, elevated temperature and accelerated pulse rate. During the "well" periods there was a return to normal in the leucocyte count, a lowering of blood pressure, a fall of temperature to normal or below, and a slowing of the pulse rate.

Of especial interest is the association of high blood pressure with the hyperleucocytosis. Whether or not the height of blood pressure exerts any influence on the number of white blood corpuscles remains to be proven.

The result of his study of the metabolism was inconclusive, failing to prove, as he had hoped, the existence of an auto-intoxication sufficient to account for the blood changes in his cases.

Two other investigators[11] are more hopeful of the ultimate success of the studies of metabolism in mental disease.

At any rate, up to the present time and with the methods now used, no definite conclusions have been reached.

However, it is certain that variations in blood pressure bear a more or less constant relation to certain forms of insanity. The explanation of the causes of these variations may ultimately be found in some disturbance of metabolism constant for the psychosis in question.

Blood pressure studied clinically in these cases is extremely interesting and valuable; and much remains to be done.

I consider it of great prognostic value. Text books on nervous and mental diseases touch but lightly on this important subject, or ignore it entirely, let alone any serious attempt at explanation. Four factors enter into the determination of blood pressure:

(a) the strength of the heart, (b) the resistance at the periphery, (c) the amount or volume of blood, and (d) the elasticity of the blood vessels.

Any alteration of one or more of these upsets the normal tone. The factor principally at fault in mania and melancholia, in my opinion, is the vaso-motor tone of the vessels, especially the abdominal vessels, either it is weakened or it is strengthened. I have often been struck with the frequency of murmurs (cardiac) in these cases, which quite often disappear on recovery. In fact, if one observes closely, he will note many disturbances of the circulation, other than blood-pressure variation, or rather symptoms and signs, attributable to the disturbance of the circulation.

In my opinion, it will ultimately be proven that disturbances of the circulation, either congenital, or acquired (toxic), are at the bottom of many forms of mental alienation, the ætiology of which is at present shrouded in darkness.

The following blood pressure charts [11] are submitted and will prove interesting study.

I have been very much interested in the circulatory disturbances of the insane, and during the past twenty months have devoted much of my time to their study, making many hundreds of blood pressure determinations.

My results generally show that in melancholia a high blood pressure obtains, in mania a low blood pressure, thus corroborating the work of others. However, occasionally I found low blood pressure in melancholia as exemplified in Chart 8. This patient was an undersized individual, thin, poorly nourished, and with an arm circumference of only seven and a quarter inches, a factor which I consider influenced the result in his case. If high blood pressure obtains in mania it is usually due to some complication, as nephritis, or the mental symptoms may be entirely dependent upon the nephritis, and could not therefore be classed under simple mania.

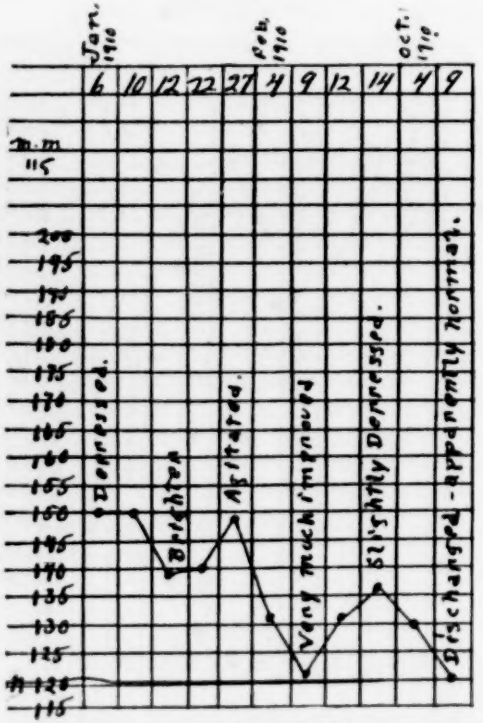
Chart 7 shows a case of mania recently admitted, but of duration since October 1910; the motor agitation being at present very little, but logorrhœa pronounced.

The other charts are of melancholias who had been ill from one to three months prior to admission, so the charts date from about the time of admission, and end at or about the time of discharge or voluntary leaving.

REFERENCES.

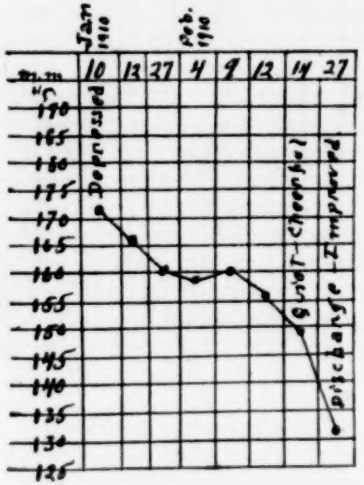
1. Farmer's Bulletin No. 142, 1910, by W. O. Atwater; Government Printing Office, Washington, D. C.
2. A. E. Taylor in Osler's Modern Medicine, Vol. I, Chaps. XIII, XIV.
3. S. Hyman, California State Journal of Medicine, Vol. VIII, No. 11, Nov., 1910, page 375.
4. The American Journal of the Medical Sciences, Vol. CXLI, No. 4, April, 1911, page 502.
5. Journal American Medical Association, Vol. LVI, Nov. 4, Jan. 28, 1911, page 265.
6. "Clinical Study of Blood Pressure," Janeway, Chap. VI.
7. Journal American Medical Association, Vol. LIV, No. 23, Article by White & Ludlum.
8. "Mental Affections," Macpherson, Chap. IV, page 59.
9. A Clinical Study with Blood Examinations of Two Atypical Cases Related to the Dementia Præcox Group, by Francis M. Barnes, Jr., American Journal of Insanity, Vol. LXV, No. 4, April, 1909.
10. A Study of the Metabolism of Two Atypical Cases Related to the Dementia Præcox Group, by Francis M. Barnes, Jr., American Journal of Insanity, Vol. LXV, No. 4, April, 1909.
11. Metabolism in Dementia Præcox, by Giacomo Pighini and Giuseppe Statiti, American Journal of Insanity, Vol. LXVII, No. 2, October, 1910.
12. The charts were made during the time the author was resident at the Livermore Sanitarium, California.

CASE 1.—AGE 30 YEARS, MALE. DIAGNOSIS: MELANCHOLIA.



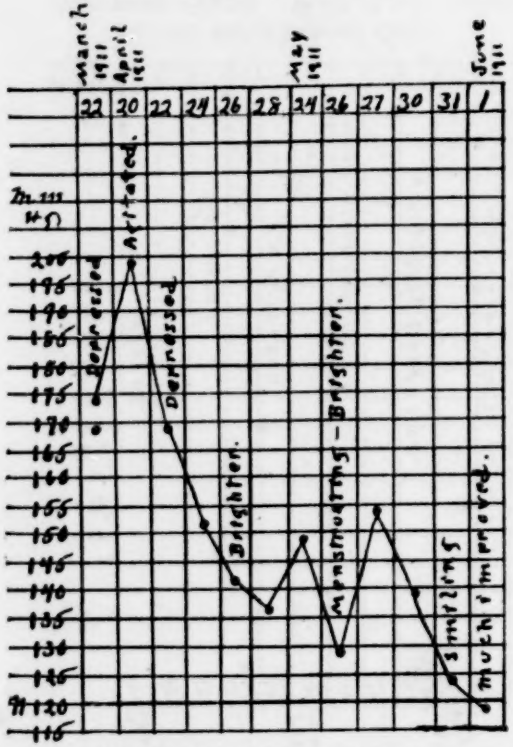
Systolic Blood-Pressure Chart.
Apparatus = Faught. Width of cuff = 12 cm.
Circum. of arm = 11 inches.

CASE 2.—AGE 62 YEARS, MALE. DIAGNOSIS: MELANCHOLIA.



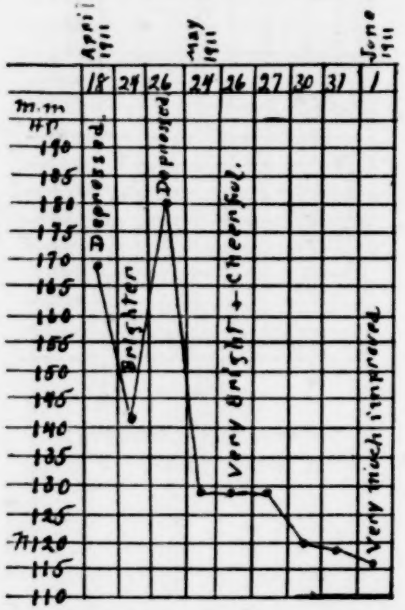
Systolic Blood-Pressure Chart.
Apparatus = Faught. Width of cuff = 12 cm.
Circum. of arm = 11½ inches.

CASE 3.—AGE 43 YEARS, FEMALE. DIAGNOSIS: MELANCHOLIA (2D ATTACK).



Systolic Blood-Pressure Chart.
Apparatus = Faught. Width of cuff = 12 cm.
Circum. of arm = 11 inches.

CASE 4.—AGE 50 YEARS, FEMALE. DIAGNOSIS: MELANCHOLIA (2D ATTACK).

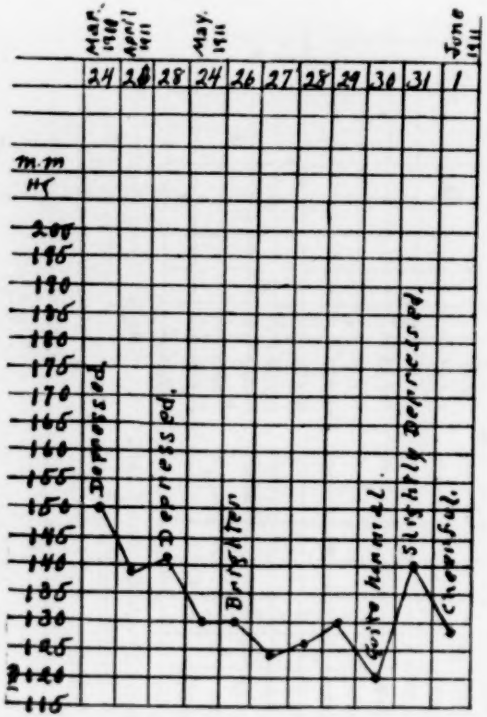


Systolic Blood-Pressure Chart.
Apparatus = Faught. Width of cuff = 12 cm.
Circum. of arm = 10 inches.

Circum. of arm = 11 inches.

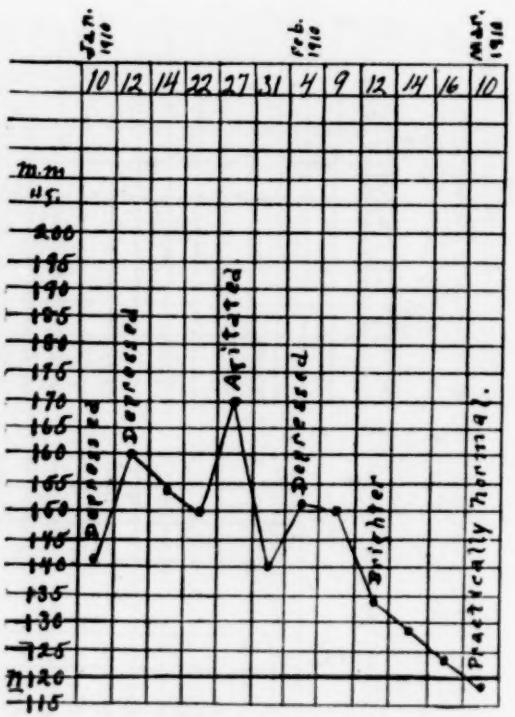
Circum. of arm = 10 inches.

CASE 5.—AGE 36 YEARS, FEMALE. DIAGNOSIS: MELANCHOLIA.



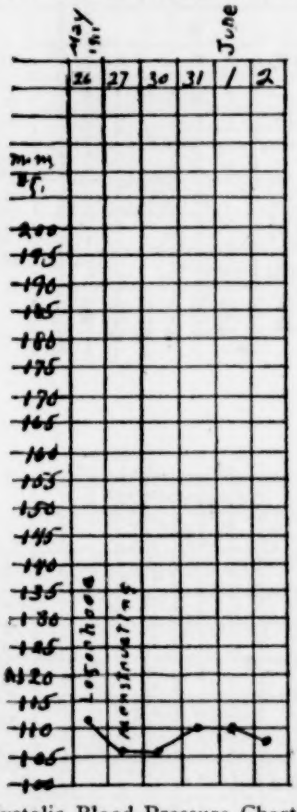
Systolic Blood-Pressure Chart.
Apparatus = Faught. Width of cuff = 12 cm.
Circum. of arm = 10 inches.

CASE 6.—AGE 31 YEARS, MALE. DIAGNOSIS: MELANCHOLIA (2D ATTACK).



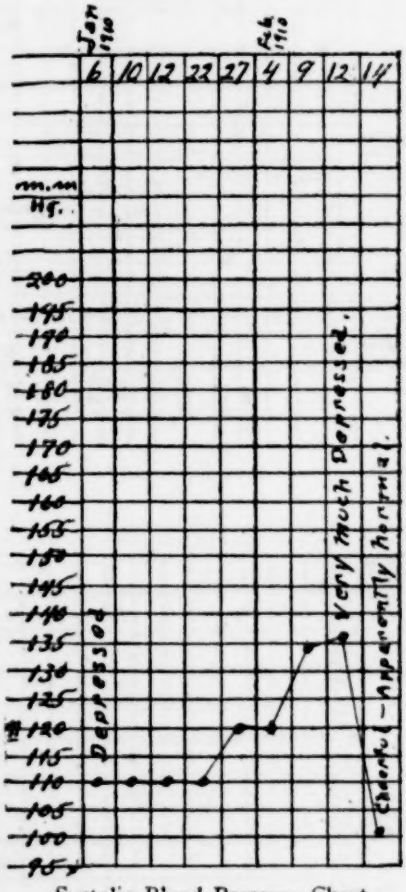
Systolic Blood-Pressure Chart.
Apparatus = Faught. Width of cuff = 12 cm.
Circum. of arm = 11 inches.

Case 7.—Age 36 Years, Female.
Diagnosis: Mania.
(1st Symptoms, October, 1910.)



Systolic Blood-Pressure Chart.
Apparatus = Faught.
Width of cuff = 12 cm.
Circum. of arm = 11 inches.

Case 8.—Age 40 Years, Male.
Diagnosis: Melancholia.



Systolic Blood-Pressure Chart.
Apparatus = Faught.
Width of cuff = 12 cm.
Circum. of arm = 7¼ inches.

APPLICATION OF THE WORD-ASSOCIATION METHOD TO AN ACUTE PSYCHOSIS.

By CHARLES F. READ, M. D.,
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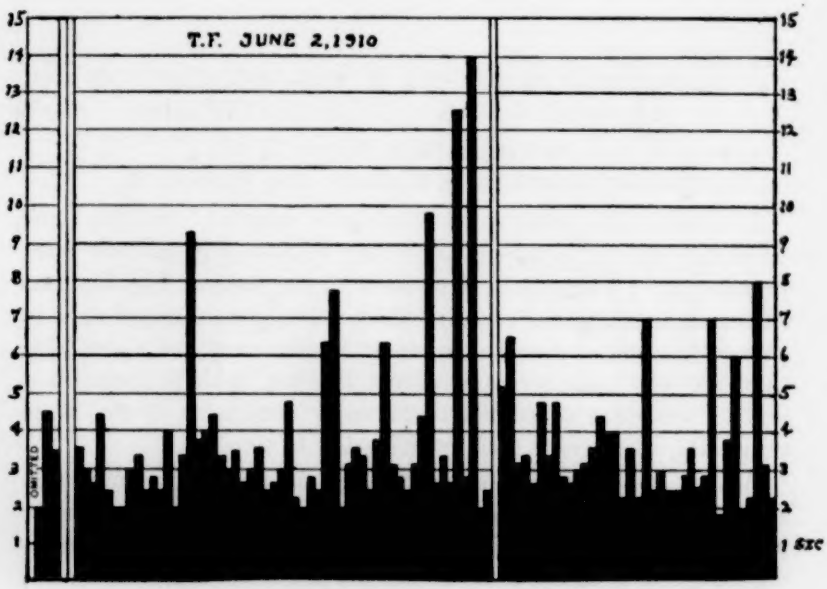
In looking over some word-association material I recently came upon the tests of a patient previously discussed in another communication.* These tests, together with the patient's explanations of her various returns, were, however, very lightly touched upon in this article and it now seems, after further study of them, that they are very possibly of sufficient interest, both in themselves and as examples of results occasionally obtainable in the acute psychoses, to warrant their presentation in toto.

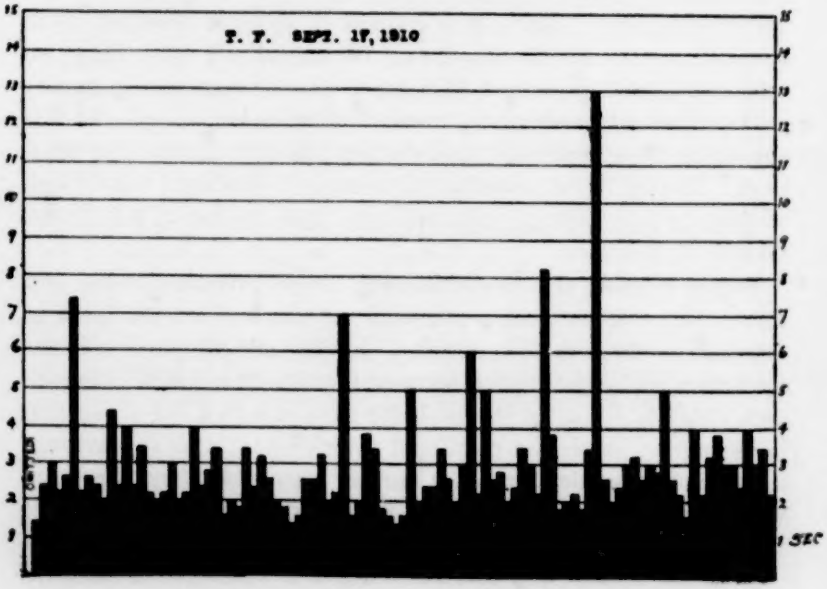
At the time of the first association test the patient, an unmarried woman of twenty-eight, was depressed, tearful, and rather monotonous in the expression of her emotion—in her assertions concerning her guilt, probable punishment, the character of her misdeeds, etc. She reacted to these ideas in a somewhat peculiar manner, but sufficiently well to necessitate some tube feeding and restraint for a short time. The entire content of thought revolved about sexual interests and the conflict of her moral self with this trend that had been suppressed with more or less success for twenty years. She was necessarily much distracted but in spite of this she often associated quite freely when asked to discuss her reactions. Not all of her associations were well explained but enough of them to give quite an extraordinary cross-section of her mental activity at this time.

Before relating this in detail I beg to call attention to the first three charts—after Jung's plan—of the successive tests taken at intervals of three or four months. Each black column represents a reaction, its height depending upon the time in seconds. Beneath each chart is recorded the probable time required for a reaction involving no particular emotional interference; also the average time, or arithmetical mean. Further than this they are quite self-explanatory and require no further comment.

* "Clinical Studies of Functional Psychoses," AMERICAN JOURNAL OF INSANITY, April, 1911.



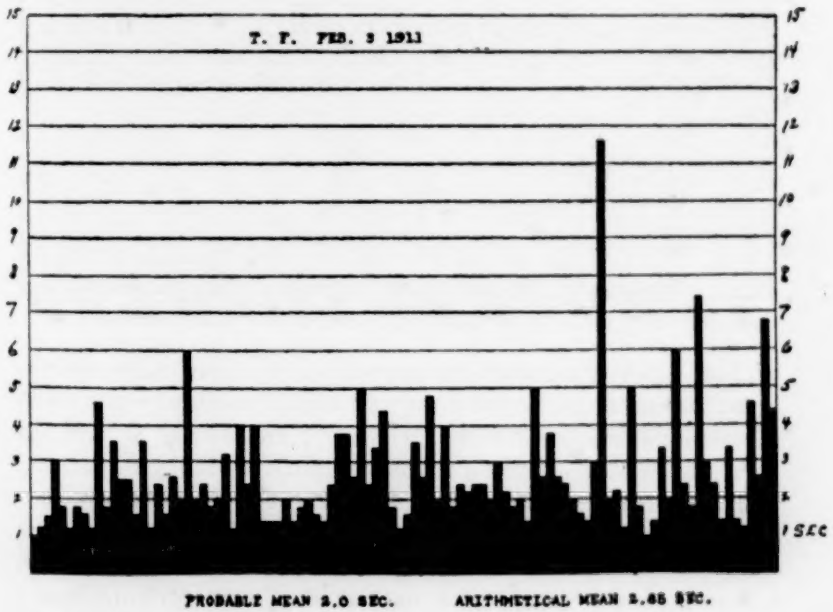
PROBABLE MEAN 2.4 SEC ARITHMETICAL MEAN 4.16 SEC.



PROBABLE MEAN 2.2 SEC. ARITHMETICAL MEAN 2.8 SEC..

The fourth chart in another manner graphically portrays much the same thing. The three curves are those of the same three tests, plotted by means of grouping the reaction words according to the following grammatical classification quite closely modeled after Jung—the height of the curve in each column being determined by the number of reaction words belonging to that group.

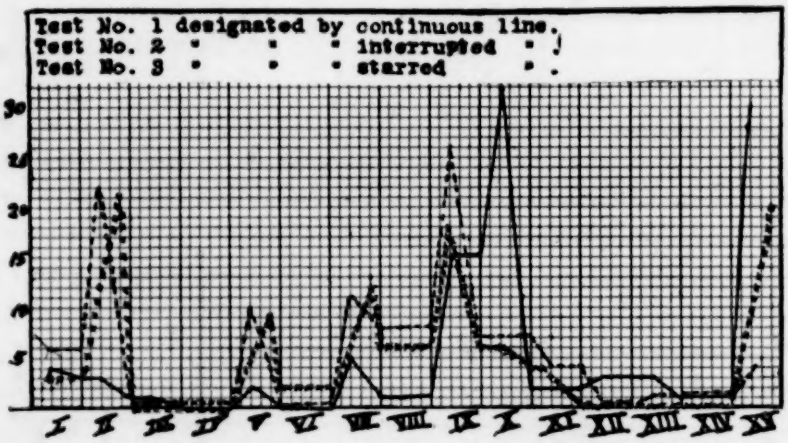
1. Co-ordination.
2. Predicate—simple.
3. Predicate—definitive.
4. Predicate—means, end, etc.
5. Predicate—noun and verb.
6. Predicate—personal opinion.
7. Co-existence.
8. Identity.
9. Motor-speech.
10. Clang.
11. Mediate.
12. Senseless.
13. Failures.
14. Perseveration.
15. Egocentric.



For the explanation of these various groupings and their psychological significance, the reader, if not already familiar with them, is referred to Jung's "Studies in Association," Vol. I. Here it is enough to state that, roughly speaking, predicates among other things indicate some degree of what may be called logical

thought, hence are indicators of attentiveness; motor-speech and clang reactions (current phrases, rhymes, etc.) betray distraction; and returns involving the individual's self—termed egocentric—naturally show introspection.

The first curve, you can readily see, is comprised almost entirely of motor-speech, clang, and egocentric reactions, thus clearly pointing to the fact that the patient at this time was distracted and self-centered. The second shows in contrast many predicates, comparatively few clangs and motor-speech reactions and an enormous dropping off of egocentrics. The patient has become, upon paper, visibly quieter and much less self-absorbed. As a matter



of fact I was congratulating myself at this time upon her approaching recovery, which I thought might possibly be the result of talking things over with her while I endeavored to readjust her point of view—I could scarcely dignify my study of her case with the term of psychoanalysis as used by the Freudian school.

The last curve you will note is conditioned by many predicates with fewer motor-speech reactions and clangs than its predecessor, but exhibits the return of a multitude of egocentric reactions. That is, the patient is again apparently upset but this time is reacting in a more superficial manner—the evidences of distraction are still decreasing. In fact she was again disturbed at this time (following an unsuccessful attempt to adjust herself to home life) and subject to tantrums of a præcox type.

Her complete word-association test of June 2, 1910, the first of the three, is as follows—and I might add that her returns in the other two are quite similar barring the exceptions already described in connection with the fourth chart.

T. F. WORD-ASSOCIATION TEST. JUNE 2, 1910.

Stimulus Word	Reaction	Reproduction
1. Head	word omitted	
2. Green	grass—2 sec.	mean
3. Water	sun—4½ sec.	cress

Unpleasant feeling tone. (Urination?) Nods head. Patient used to wet bed when a child and has done so since being here, because she was restrained. Reverts to childhood experience—smell of father's urine in wash-bowl.

4. To prick — me—3½ sec. — me

Unpleasant. Likes beer—mentions a vulgar term for urinal—then—"Chamber—husher—(cries) nurse pricked my chin one night in sanitarium and got secret out of me that mamma told me never to tell. (Much emotion and hesitation.) Told me—oh, I can't tell—that Louis D—was married to a bad woman—divorced her—she went with bad men. When they brought me here they passed by the house they lived in—*I know they wanted me to keep a bad house—I once had the thought I wanted to do that.*"

5. Angel— — (failure) — devil

Failure and second reaction are self-explanatory in view of patient's mood.

6. Long — (failure) — thorn

Again the same vulgar term for urinal as in No. 4—"long tube—two doctors—my eyes."

The stimulus word here has an intense sexual significance for her and the association of *tube* is interesting in view of later reactions tending to show that the feeding tube has been assimilated as a phallic symbol—*thorn* is explained later.

7. Ship — ship-board 3.6 sec. — sky

Long reaction time is the result of emotion aroused by No. 6.

8. To plough — me—3 sec. — land

Unpleasant. Not explained.

9. Wool — lamb—2.8 sec. — sheep

10. Friendly — kindly—4.2 sec. — friends

Superficial associations of a motor-speech and clang character. Lengthened time caused by her ideas of social degradation, punishment, etc., and desire for sympathy.

11. Table — vulgar term for portion of genitalia—2-2/5 sec.—dining-room.
"I eat too much." Patient gets her tray on a table and speaks of eating as a passion, thus associating it with more carnal desires.

12. To carry — me—2. sec. — me
Association is evident. Patient has had phantasmagorical miscarriages. Following this reaction there are eight repetitions of the egocentric *me* showing how powerful is the affect when strengthened by the following stimuli.

13. Insolent — me—2 sec. — me

14. To dance — me—3-2/5 sec. — me

15. Lake — me—3.4 sec. — fake

16. Sick — me—2-2/5 sec. — sickly
"I can't be sick—menstruate."

17. Proud — me—2.8 sec. — me

18. To boil — me—2.4 sec. — me

19. Ink — me—4 sec. — think

20. Angry — me—2 sec. — self

21. Needle — point—3.4 sec. — point
Superficial association but lengthened by affect of preceding reaction.

22. To swim — lake—9.4 sec. — lake
Patient nearly drowned at one time, but this explanation is not sufficient to account for extreme delay.

23. Journey — voyage—3.8 sec. — George
George is lover's name—association doubtless through *wedding journey*.

24. Blue — me—4. sec. — Monday
Is much depressed.

25. Bread — staff of life—4.4 sec. — brass
She often censures self for eating too much. It is a carnal appetite and links itself to the other desire which is troubling her, by the contamination, or mere clang, *brass*. A very interesting reaction, in view of No. 11, because brass is a combination of the first two letters of bread with the vulgar term used in that reaction.

26. To threaten — me—2.4 sec. — me

27. Rich — food—2 sec. — peach

28. Lamp — light—3.5 sec. — light
Superficial association, but delayed. Not explained, but probably is associated with No. 64.

29. Tree — green—2.6 sec. — olives

30. To sing — singer—3 sec. — Aunt N——
"Aunt N—— gave me a valentine and told me I had a sweet voice." Patient likes to sing.

31. Sympathy — sympathize—3.6 sec. — sympathize
Desires sympathy.

32. Yellow — fever—2.6 sec. — fever

33. Mountain — top—2.5 sec. — top

34. To play — piano—3 sec. — piano
Patient is a music teacher.

35. Sail — shore—4.8 sec. — ship
Not explained.

36. New — news—2.2 sec. — blue
Superficial associations by co-existence and clang, with distraction.

37. Custom — cuspidor—2 sec. — sparrow
First a clang and second apparently a senseless reaction. Not explained but showing distraction.

38. To ride — write—2.8 sec. — pony
Possibly sexual. Not explained.

39. Wall — paper—2.4 sec. — paper

40. Stupid — me—6.4 sec. — sight
"I am stupid" (sobs). A very common egocentric reaction in psychoses.

41. Volume — spelling-match—7.8 sec. — brown
Not explained.

42. To despise — me—2 sec. — me
Egocentric and self-explanatory.

43. Teeth — tea—3.6 sec. — mittens
First is a clang, the result of persistent affect from No. 42. *Mittens* refers to another patient in same dormitory who wore them to prevent her picking at her nails and face. These are to show our patient "what she is coming to." The second reaction is probably a mediate one through the motor-speech phrase "tooth and nail" which is suppressed in favor of the next association, *mittens*.

44. Crowd — proud—3.4 sec. — proud
Clang—due to persistent affect.

45. Book — booked—2.4 sec. — look
Same as No. 44.

46. Unjust — justice—3.8 sec. — mean
People are sometimes unjust to her, and nurses have been mean.

47. Frog — bog—7.6 sec. — throat
"Unpleasant word—warts—slimy things." The second reaction is a motor-speech coming from "frog in throat."

48. To cut — me—3.2 sec. — throat
"I cut myself once with a marble when mamma told me not to—tried to cut throat once with a stick"—(cries).

49. Hunger me—2.8 sec. thirst
Is hungry much of time.

50. White light—2.4 sec. light

51. Ring sing—3.2 sec. sing
(cries)—"Gertrude gave me one—(cries)—Oh, I love her—saw George W——(the lover) for the last time the day I went to Kansas City. I thought too much of my brother-in-law in a way I shouldn't."
Patient thinks much of rings. Mother once gave her her wedding ring. When asked why she cried so much, she returned, "Oh, I don't know—I would like to have the good of them." And when asked if she would like to have one of her own, she replied after hesitation, "I would"—applying the thought to wedding ring.

52. To listen write—4.4 sec. write
Emotional distraction results in association by co-existence of examiners listening and writing, with time delay.

53. Pencil tube—9.8 sec. tube
"I took a pencil once—I thought of throwing it up out of my throat." Probably a pudendal transference with phallic symbolism, in the light of subsequent reactions.

54. Woods wood—2.6 sec. go

55. Apples pie—3.4 sec. thorn-in-flesh
A very interesting reaction. The first is a superficial one, but much delayed; the second plainly indicates the cause of this delay. "Apples," she says "used to bring out a rash on me—Adam's apple—oh dear." (What are you thinking of?)—"thorn in the flesh"—(her term for the male organ)—the association possibly travels from Adam to Eve and thence by "forbidden fruit" to the final reaction.

56. To meet feet—2.6 sec. feet
Clang as result of persistent affect.

57. Law me—12.6 sec. justice
Almost a failure, and poorly explained as "I am living on money that is not mine. I am afraid of the law."

58. Love me—2.8 sec. me

59. Glass time—14 sec. grass
"It cuts—have thought of eating glass—to punish myself—I think such funny thoughts." Patient once broke ward mirror impulsively but did not attempt to harm self.

60. To quarrel fight—2 sec. fight

61. Goat moat—2.6 sec. gloat

62. Large (failure both times)
An extremely interesting reaction. She associates as follows: "Not pleasant to think of abdomen being filled up—with water and everything else. I have been eating too much—a woman with child—large house—I coughed it up—a pencil—blood—thought of tonsils being cut—Uncle J—— ran a knife into his mouth once, Jessie told me, and cut his tonsils." Here she cries and is asked why. "I'm scared over what is to happen to me. I give it up. There isn't any hope for me." A very little questioning establishes the fact that this train of thought—in part frankly and again symbolically expresses thoughts of intercourse and has arisen out of an application of the stimulus word to the erect male organ.

63. Potato cold—5.6 sec. hand
Second reaction is a perseveration.

64. To plant lamp—6.6 sec. potatoes
"A lamp was put in the window when I had that child. I killed it in anger (cries) I don't understand it—I don't know—I placed my hand down there—anger killed it." Again the dream fancy of birth appears.

65. Part art—3.2 sec. park
Clang reaction, but lengthened time.
"While in Kansas City I thought of George—wanted intercourse with him—thought of killing the baby—of putting its thorn in me." A hint here of sadism and necrophilia.

66. Flower daddy—2.8 sec. flowering (cries)
Patient placed a flower in vagina at one time during psychosis, an odd act possibly symbolically related to the term "de-flower"—or menstruation. Patient has worried because she could not be "sick"—reaction *daddy* not explained save that her father apparently possesses for her a sex fascination though he is now over eighty. See No. 3.

67. To strike write—2.8 sec. me

68. Box fox—3.4 sec. candy
"Candy-box—coffin."

69. Wild wilds—4.8 sec. snake
Has professed to be greatly afraid of a "crazy man" to whom she is to be given over when "bound and gagged"—this fear was expressed at the time she was restrained in bed and fed with a tube—hence the snake, a common phallic symbol.

70. Bright write—2.8 sec. write

71. Family way—2.6 sec. way

72. To wash washing—3 sec. me
"me" is here a probable perseveration of thought expressed in "family-way."

73. Cow meow—3.2 sec. finger
Absurd clang with lengthened time and an apparent senseless second reaction with still longer delay (7 sec.). Both are explained as follows, when she is asked to associate freely. "Breasts producing milk—thorn-in-flesh—opened myself up with finger."

74. Stranger ranger—3.6 sec. strangle
Persistence of emotion aroused by No. 73 results in clang.

75. Luck (gives vulgar rhyme) 4.4 sec. good
"Girl on Wabash Ave., used it when I was a little girl—*they wouldn't tell me what such things meant and called me 'Innocence'*".

76. To tell smell—4 sec. me
Probably second reaction is a perseveration from No. 75.

77. Hesitation agitation—4 sec. love
Self explanatory in view of her doubts and desires.

78. Narrow minded—2.2 sec. minded

79. Brother rother—3.2 father
Senseless clang—not explained. Brother-in-law, however, was the one time object of sexual fancies.

80. To harm me—2.2 sec. me

81. Stork fork—6.8 sec. fork
Clang with very long delay and indicating the revival of birth memories.

82. False alarm—2.4 sec. alarm

83. Anxiety about—3 sec. about
"About my case."

84. To kiss me—2.4 sec. me
"Doctor kissed me once—one who was treating my eyes and ears and scalp. I don't know whether he put his hand on my breast or not." This occurred when patient was eight or ten years old.

85. Fire alarm—2.4 sec. alarm

86. Dirty self—2.8 sec. self
"I am nasty—I've sinned."

87. Door dog—3.6 sec. ajar
A clang but also conditioned by a perseveration of stimulus No. 86. She has thought of herself as a dog since being in the institution.

88. To choose me—2.6 sec. me
Evident.

89. Hay way—2.8 sec. pay
Clang following distraction of No. 88.

90. Quiet me—7 sec. might
Wishes help and peace.

91. Scorn me—1.8 sec. me

92. To sleep me—3.8 sec. late
Probable perseveration.

93. Mouth out—6 sec. out
"That pencil I had in school—since being here I've thought of its coming out of my mouth. Some one would have to put it in for me—gag me with it—"
Compare with Nos. 53 and 62. Again we find the pencil used as a phallic symbol with transferal of pudenda upward.
Thus "pencil-out-of-mouth" is really an intercourse fantasy reminiscent of the vulgar saying "What comes out, must first go in."

94. Colored light—2 sec. light

95. Dog fog—2.2 sec. S———
S—— is the name of the doctor referred to in No. 84. Association not explained.

96. To talk shut up—8 sec. about
"I talk too much with my mind."

97. Carriage miscarriage—3.2 sec. miscarriage
Patient mentions an acquaintance who she thinks may have induced one. She herself had fancied one but does not mention it.

98. Sky light—2.2 sec. light

In conclusion I cannot claim that in the above anything actually dissociated is brought to light. The psychosis is, itself, the eruption of a submerged trend that for years—in fact since early childhood—has grown by gradual accretion until at length it has suddenly attained the plane of consciousness, over-running it completely with the products of its uncoordinated, volcanic activities. At times attempts are made to disguise these activities with transparent symbolisms and again to make amends for them with self-accusation, predictions of punishment, etc., but their source is not concealed.

I regret the study is so incomplete but the patient was not quiet enough to co-operate well at the time, and in the hurry of dealing with other material, I did not carry out the investigation so thoroughly as the case would seem to have demanded. As stated before, however, it is published not for itself alone, but as an example as well, of what may occasionally be done with the word-association method in acute psychoses.

ELEMENTARY CONSIDERATIONS OF APHASIA.*

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A consideration of the subject of aphasia as here presented is in a sense open to criticism from two standpoints. To the special workers in the field it can offer nothing new; while to those who are not brought into frequent contact with such cases the entire question is prone to be regarded as one of principally theoretical interest, of but little practical import and of limited application.

In view, however, of the fact that it is largely through the investigations of aphasic disorders that much of what is known of cerebral function and localization has been learned, it must be conceded that in this respect alone the subject is of more than limited scientific interest.

On the other hand the protracted discussion of many disputed points has perhaps lead to some confusion as to what in reality are the accepted teachings of the various authorities, and this together with the rather radical revision of the entire subject as recently proposed by Marie would seem to justify a limited review, in which both the classical teachings of the earlier school and the more recent conceptions of Marie are summarized and stated in as concise a manner as the subject permits.

In such a discussion there is obviously no claim to originality and the statements and subject matter presented are taken from the works of the various authors to whom reference is made.

General Considerations of Aphasia.

The conceptions of aphasia as taught by the earlier school of Broca, Bastian, Lichtheim, Dejerine, v. Monakow and Wernicke are based on the assumption (or proof?) of certain definite centers of cerebral activity, each of which, though intimately connected with the others, possesses a distinct and separate function in the realm of speech; and the area of the cerebrum embracing these

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centers has been termed the "zone of language"; the anterior portion in general being motor, and the posterior portion, sensory in function.

On the nature and location of at least two of the special centers there is (or was) practically general agreement; the center for the storage of "kinesthetic memory pictures of speech," first demonstrated by Broca, in the foot of the left third frontal convolution; and termed the motor speech center; and the center for "sound memory pictures" located in the first (and second) left temporal convolution, originally largely determined by Wernicke, and termed the sensory speech center. Thus, aphasic disorders in their simplest forms would arise from circumscribed lesions of these two centers and would be displayed purely as disturbances of emissive and receptive speech respectively.

The entire aphasic syndrome is rendered complex, however, by reason of the intimate relation which one center bears to the other, the disputed question of the existence of a third center, and the conceptions of Wernicke concerning the relation between the more abstract intellectual activities and the clinical types and manifestations of aphasic disturbances.

Since the relations and associations which exist between the emissive and reception centers of speech (largely through the island of Reil and Claustrum) are necessarily of the most intimate character, it is obvious that in the main, a disorder though primarily affecting one of the centers, must assuredly lead to a disturbance in function of the other.

Thus, Broca's aphasia, in which motor phenomena predominate, is constantly accompanied by certain readily demonstrable defects of comprehension; and conversely in aphasias of essential sensory type, when the sensory center itself is affected, emissive speech becomes disordered and uncertain.

The importance of the sensory speech center in the latter connection is obvious when it is recollected that in learning to speak, this faculty in the majority of instances at least, is probably acquired by the repetition of word sounds which are first comprehended and stored in the receptive center of language. Furthermore, since as claimed by Wernicke, the process of *thinking* is accomplished by means of *sound* pictures, disorders of the sensory center will likewise result in profound disturbance of the process

of " internal language," that is, of the process of *word conception*, and consequently of the ability to read and to write (verbal alexia and agraphia). But, according to Wernicke the sensory speech center in itself is in reality but the termination of the auditory nerve where merely the *sounds* of spoken words are perceived and understood as such. It can therefore have nothing to do with the understanding of the word *sense*, but serves as a transmitting station for properly perceived word sounds to a higher center where the concrete meaning of such sounds are appreciated; " a center for the understanding of the word sense." A typical example of the operation of the lower sensory speech center without the necessary interaction of a center of word conception is offered when the word sounds of a foreign language are heard before a knowledge of their meaning is acquired. Similarly, for the correct appreciation of the nature of *objects* analogous center of " concrete conception " (Ziehen) is indicated, and in this must converge the various sensory projection fields by which are conveyed the knowledge of the physical properties of objects. For example, the conception of a rose would be the sum of an optical memory picture, an olfactory memory picture and a tactile memory picture all so intimately connected in the various cortical fields, together with the accompanying *word* conception, that the stimulation of even one sense by the object is sufficient to call to mind all of the other properties of the object together with its proper word symbol. Thus the definition of a concrete conception is " the definite grouping of associated memory pictures with each other," and the relation of the centers of conception to *mind blindness* (so-called apraxia) becomes of obvious significance.

It is on the (probable ?) existence of such higher centers of " word conception " and of " concrete conception " that Wernicke conceived the types of aphasic disorders which he designated as " transcortical "; * and which arise from an interruption of the association tracts which connect the motor and sensory speech centers with the so-called region of conception.

The location of such a region is obviously theoretic and comprises the realm of " intellect," hence the general cerebral cortex;

* Transcortical being used in the sense that the lesion is situated beyond the nearest center the activities of which are interfered with in the given syndrome.

and in the transcortical forms of aphasia there are disturbances of "internal language" similar in general to those observed in disorders of the motor and sensory speech centers themselves. The entity of the transcortical aphasias is questioned but frequent cases are observed in which such relations are said to offer the only satisfactory explanation of the clinical facts.

In contrast to the cortical and transcortical aphasias, in which either of the motor and sensory speech centers themselves are involved, or in which their associations with the centers of "intellect," are disturbed, and in which both emissive and receptive speech and internal language are disordered, are the forms of aphasic disorder which result when the projection fields below the centers are alone divided.

Since in such case both the cortical centers and their higher conception connections are intact, intellect will be unimpaired, the power to read and to write will suffer no reduction and the entire process of internal speech will remain intact. The manifestations in such cases are thus confined solely to a central mechanical inability of speech sounds to leave or to reach the centers in which they are normally elaborated or perceived.

From the location of the lesion in such forms of aphasia, they are designated "subcortical" aphasias and represent the purest forms of speech disorders; pure word mutism and pure word deafness. They are of uncommon occurrence and Marie contends that pure word deafness does not exist though Wernicke and Liepmann claim undoubted cases of this nature.

It is, however, in the disturbances of written language that the greatest disagreement among authorities exists as to the centers and mechanism concerned. It is claimed by Dejerine, and supported by Bastian and Pick, that the functions of written language are dependent upon the integrity of a definite center for the storage of "optical memory pictures of words"; that this center is unilateral; located in the cortex of the left angular gyrus, and connected by association paths with the primary optic sensory field in the calcarine area of the mesial and basial surface of the occipital lobes. This conception obviously narrowly constricts the function of written language and tends to regard reading and writing as faculties, in a sense, more or less independent of spoken language and speech conceptions. Dejerine says: "a

unilateral focus deeply seated in the medullary structure of the parietal lobe produces a combination of right-sided hemianopsia and isolated writing blindness or alexia; if the affection is disseminated and reaches the cortex of this portion of the brain, agraphia is added to alexia." The accuracy of this statement in general is not disputed by Wernicke and v. Monakow. The latter observers, however, deny the existence of any so-called "optical word center" and claim that the cortex of the gyrus angularis is not at all concerned in alexia and agraphia, but that these disorders result from division of certain association tracts lying beneath the cortex in this region.

Wernicke persistently claims that reading and writing are not independent functions, but are "transcortical subordinated activities from the centers of *spoken language*," and that hence, "the faculty of writing depends upon spoken language, and is lost as soon as the word conception or internal speech is damaged (cortical and transcortical aphasia) and is retained as long as word conception and internal speech remain uninjured" (subcortical aphasia).

In the general anatomical considerations of aphasia the unilateral position of the two principal centers of speech in the left hemisphere, as well as the exception and modifications to which this is subject, is of primary importance in the sense of cerebral localization.

Although the fact that the left hemisphere is the seat of the "zone of language" is well supported by anatomical observation, and that their unilateral location is perhaps adequately explained by the principle of the conservation of energy there is no good explanation of the fact that the conspicuous right handedness of most persons causes the development of the speech centers in the left half of the brain, and that in left handed individuals a similar function is assumed by the right hemisphere.

That the localization of the speech centers is largely the functional acquirement of each individual is clearly demonstrated by certain observations of aphasic disorders in left handed individuals and of cerebral lesions in childhood. Thus, Oppenheim reported a case in which marked sensory aphasia due to a tumor appeared simultaneously with a left hemiplegia; the history revealed the fact that the patient was not left handed from

birth, but that owing to an injury to the right hand at the seventeenth year she had subsequently become left handed. Autopsy revealed the suspected tumor in the left hemisphere. This observation leads to two conclusions; first, that the right hemisphere may assume the function of speech even in adult life in place of the left hemisphere whose function it is normally; second, that the left hemisphere may completely lose the previously acquired function of speech if the person becomes left handed.

In childhood, disturbances of speech caused by disease of the left hemisphere are rapidly compensated for, even when subsequent findings reveal the complete destruction of the left sided speech centers. Apparently in childhood the preexisting left sided cerebral function is readily transferred to the right hemisphere; under these circumstances left handedness is not necessarily produced and in the later years fresh lesions in the right sided centers may cause aphasia in persons who are not really left handed.

In the fully developed brain how far such a substitution for destroyed speech centers occurs is much discussed. It is generally conceded that slowly growing pathologic foci, which act largely by displacement (brain tumor and abscess), may produce no symptoms, not even of speech disturbance, although autopsy findings may show the center or tracts under consideration to be severely affected. Oppenheim's case is contrary to this, since substitution from the right hemisphere to the previously active left sided centers did not occur.

The reason advanced by Wernicke as to why, in this and similar instances, substitution of centers does not take place is, that while in some cases the lesion in one hemisphere may have no affect upon the integrity of function of the opposite side, in others the presence of a one-sided lesion may so damage the general cerebral functions that the opposite hemisphere is prevented from assuming the function of the other.

The principal points in the general considerations of aphasia, up to the time of the revision of the subject by Marie, then are:

(1) Two well recognized forms of aphasic disorders; simple motor and sensory aphasia, arising from destruction of the two definitely established cortical centers of motor and sensory speech upon which all observers are agreed; both forms displaying a mixed picture and disturbances of internal language. (2) The

less definite and rarer forms of pure emissive and receptive speech disorders due to affection of the projection fields below the centers

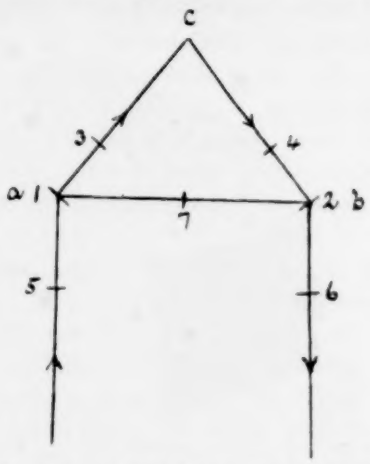

FIG. 1 (modified by Wernicke after Lichtheim).—The diagrammatic representation of the relations between the various centers concerned in spoken language together with their association tracts and the theoretical location of the lesions in the different clinical types of aphasia. *a*, sensory speech center; *b*, motor speech center; *c*, higher center of concrete conceptions and conception of words. 1 and 2, sensory and motor cortical aphasia; 3 and 4, transcortical sensory and motor aphasia; 5 and 6, subcortical sensory and motor aphasia; 7, conduction aphasia.

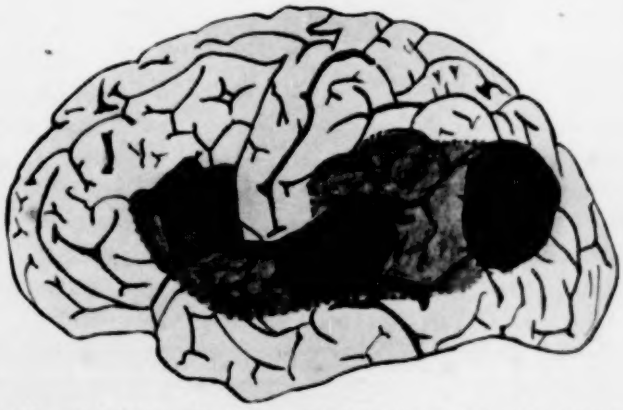

FIG. 2 (after Dejerine).—The "zone of language" as outlined by Dejerine. The lighter-shaded area includes the entire zone, while the darker areas represent the location of the three definite centers believed to exist by Dejerine, Bastian and others. With the exception of the posterior center in the gyrus angularis this was also accepted by v. Monakow and Wernicke. *a*, motor speech area; *b*, sensory word center; *c*, optical word center.

and in which internal language remains intact. (3) The partially demonstrated but disputed transcortical aphasias of Wernicke

in which the speech centers are severed from the realm of conception and intellect. (4) The disputed question of whether disturbances of written language are dependent upon a disorder

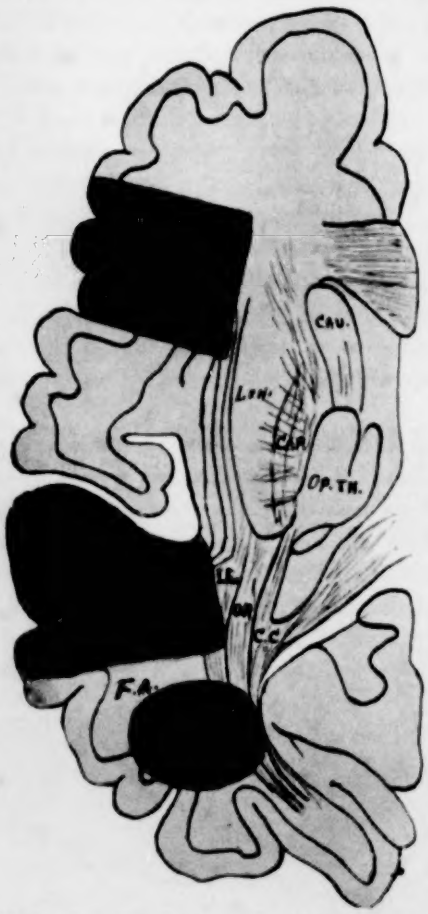

FIG. 3 (after v. Monakow).—The location and relative extent of the lesions of motor and sensory aphasia and alexia and agraphia in a horizontal section of the left hemisphere. In the posterior half of the section is shown the three deep fiber tracts of the inferior parietal lobe cut by the lesion of alexia (*I. L.*, inferior longitudinal bundle; *O. R.*, optic radiation; *C. C.*, fibers of the corpus callosum). Between the inferior longitudinal bundle, and the cortex, in the true medullary substance of the gyrus angularis pass the fibers of the fasciculus arcuatus (*F. A.*) said by Wernicke to be the association tract concerned in agraphia.

of a definite unilateral cortical center for optical memory pictures or are the secondary result of disturbances of the centers of association tracts concerned in spoken language.

The various types of aphasia with their clinical syndromes and anatomical bases as demonstrated and taught up to the time of Marie's revision are included in the following. As before indicated, a number of the types, notably the transcortical and conduction aphasias and sensory subcortical aphasia, were subject to some dispute, and on the subject of certain principles involved in the disturbances of written language there was practically no agreement among the earlier observers themselves, even before Marie assailed the entire structure of the previous conception of aphasia in 1906.

In Figs. 1, 2 and 3 show the extent of the zone of language and the location of special centers; the diagrammatic conception of the speech mechanism as affected in aphasia; and the anatomical locations of the lesion in the more common forms of aphasic disorders as taught and accepted by the majority of the earlier observers.

The Clinical Syndromes and Anatomical Bases of the Classical Aphasias.

Simple motor aphasia. (Broca's aphasia; cortical motor aphasia.)

Clinical Syndrome.

The power of articulate speech is lost, both spontaneously and by repetition: The patient is practically mute so far as true articulate expression is concerned. If any power of speech is retained it consists in a senseless repetition of the same few inarticulate sounds or syllables. Sometimes profane or emotional expressions are uttered. These expressions, as well as the few retained syllables, are not voluntary or intended to express what is meant (as in transcortical motor aphasia), but are the invariable reactions to all demands on the speech centers. "The mechanism of speech is forgotten." Words and phrases which are sometimes uttered in sleep are impossible of repetition when awake.

The power of understanding spoken language is in the main retained: Simple orders are carried out, objects are produced on demand and questions understood. Although the receptive apparatus is *relatively* clear, the finer differentiations of speech are always disturbed by reason of the intimate association of the

two centers; the reactions to complicated constructions, involved commands and abstract conceptions are invariably impaired.

The power to write voluntarily and to dictation is lost: The motor aphasic is able to form a limited number of individual letters, but the writing of words is impossible. The ability to *copy* is preserved; the motor aphasic copies print in *script*. (A *verbal* agraphia as distinguished from a *literal* agraphia).

"Internal speech" is impaired: The patient cannot read silently with understanding. "The motor aphasic cannot talk to himself and cannot read to himself." The Proust-Lichtheim test* is negative (contrast with subcortical motor aphasia and subcortical sensory aphasia).

Anatomical Basis.

According to the teaching of Broca, v. Monakow, Wernicke and others of the earlier school the lesion constitutes a destruction of Broca's area; the foot of the left third frontal convolution.

SUBCORTICAL MOTOR APHASIA (PURE WORD MUTISM).

Clinical Syndrome.

The simple abolishment of the power of translating the intact (internal) word conceptions into word sounds due to the division of the motor projection fibers leading from the motor speech center: Although totally unable to pronounce a single word aloud the internal mechanism of speech is unimpaired. The internal word conceptions are intact as shown by the rhythm of the articulate sounds produced in efforts to speak; therefore the patient responds positively to the Proust-Lichtheim test; "he can talk to himself, but not aloud."

The comprehension of spoken words is absolutely intact: The ability to write spontaneously, to dictation and to copy is entirely unimpaired. Silent reading is readily performed with perfect comprehension.

The patient with subcortical motor aphasia hears and thinks in word symbols; he is intellectually unimpaired; "silent language" is perfect; he is incapable only of articulate speech.

* The power to correctly indicate by signs or gestures the correct number of syllables in a given word even though the power of articulation be lost.

Anatomical Basis.

As taught by the earlier school the lesion is one involving the medullary fibers of Broca's convolution, either in the convolution itself (beneath the cortex), or one involving the fibers as they join the centrum ovale. v. Monakow states that a partial destruction of the lower part of the convolution (toward the Sylvian fissure) also produces pure word mutism.

Marie claims that the lesion is one involving the lenticular zone alone; he does not recognize pure word mutism as aphasia, but designates it as "aphemia" (anarthria).

TRANSCORTICAL MOTOR APHASIA (AMNESIC APHASIA: AMNESIA VERBALIS).

Clinical Syndrome.

The arrest or very decided impairment of spontaneous speech due to the division of the association tract between the centers of "concrete conception" and the motor speech center: While at best the patient can utter but occasional single words or short phrases spontaneously, repetition is fluent and perfect and is only limited by the power of retention. The command of language is unlimited and automatic. Long sentences, verses or speeches learned by rote (Lord's Prayer, multiplication tables, etc.), are smoothly recited, either at command or by repetition; articulation is absolutely faultless. But the simplest communication, conversation or difference of opinion is impossible through spontaneous speech; once in a while a single short answer is obtained; questions are usually answered by gestures. The speech still at command is not made up on a few senselessly repeated words or syllables as in cortical motor aphasia, but there are occasional expressions of discontent, helplessness and anger, therefore true emotional reactions.

Spoken language is well understood: Words are correctly heard and comprehended and directions and commands correctly carried out. There is an impairment of the power to write spontaneously corresponding to the spontaneous speech defect present. Writing to dictation is correct or accompanied by paraphasic distortions. The patient reads silently with full understanding; reading aloud is performed with paraphasic admixtures.

In the lighter forms of transcortical motor aphasia the disturbance consists in a difficulty in "word finding"; there is an inability to name objects seen (mind blindness); a difficulty in finding substantives in conversation. When the desired word, or part of the word, is suggested it is recognized and eagerly accepted. This type of aphasia (partial transcortical motor aphasia) is designated *amnesic aphasia* (Pitres), or *amnesia verbalis,* and is best exemplified in mental disorders such as senile psychoses with cerebral atrophy.

It is illustrated in normal individuals by occasional inabilities to recall certain words of limited importance on certain occasions; and similarly in persons with a limited command of a foreign language who are unable to express themselves in words which they understand correctly when heard. When such phenomena are observed in connection with a native language *amnesic aphasia* is demonstrated.

The condition is usually not associated with focal lesions, but is commonly encountered in *mental disease* and the transcortical motor and sensory aphasias in senile dementia may often be recognized without traces of focal disorders (mental blindness demonstrates the condition).

Focal symptoms, if found in amnesic aphasia will be of secondary importance to the actual difficulty in word finding and will merely indicate the area which is the seat of general decrease of cerebral activity; as for instance, in cases of post apoplectic dementia.

Transcortical aphasia (both motor and sensory), since they involve the higher centers of conception and intellect are the syndromes constituting the border line pictures between true focal organic disturbances of cerebral activity (on which are based the studies of cerebral localization), on the one hand and the essentially functional psychic disorders of pure mental diseases on the other. It has even been suggested that the peculiar mutisms observed in mental disease (*e. g.,* catatonia) are due to some obscure form of transcortical aphasic disorders.

Anatomical Basis.

The lesion of transcortical motor (as well as sensory) aphasia is said to be one which cuts the fasciculus arcuatus (in the neighborhood of the left first temporal at the Sylvian fossa) thus sever-

ing the connection between the temporal sensory speech center and Broca's motor speech area.

In amnesic aphasia (amnesia verbalis) the alterations consist in an atrophic reduction of the general cerebral cortex (the higher conception center) as is seen in senile and alcoholic brain atrophies.

It should be understood that a part at least of the conceptions of the transcortical aphasias as introduced by Wernicke are based largely on theoretical considerations, and although clinically such cases are not infrequently encountered, the anatomical basis is admitted to be incomplete.

THE SO-CALLED CONDUCTION APHASIA.

This form of aphasia, introduced by Wernicke, is based largely on theoretical grounds and certain clinical observations. Much of the clinical data is contradictory and the anatomical basis has not been satisfactorily demonstrated. The entity of conduction aphasia is disputed. Theoretically conduction aphasia is the interruption of the *directly* communicating tract over which in childhood the word sounds perceived by the sensory center are conveyed to the emissive part of the speech apparatus.

In conduction aphasia neither of the centers themselves or the higher fields of conception are disturbed.

The clinical syndrome of such an interruption should include:

An undisturbed faculty of spontaneous speech.

A full comprehension of spoken words.

An inability to repeat meaningless words or phrases, such as a foreign language.

A paraphasia with ability to correct errors in repeating words and phrases whose meaning is understood.

SIMPLE SENSORY APHASIA (CORTICAL SENSORY APHASIA; WERNICKE'S APHASIA).

A defect in the comprehension of the sense of spoken words arising from a defective comprehension of word sounds due to the division of the medullary "acoustic word fibers" entering the sensory speech center. "An arrest of the understanding of speech with retention of the power of hearing": In cortical sensory aphasia the *word sounds* themselves are not appreciated and hence meaning can not enter into consciousness, while in

the *transcortical* type the *sounds* are plainly perceived but their significance is not grasped.

The power of articulate speech is retained: Sensory aphasia is the aphasia of comparative speechfulness as compared with the speechlessness of the motor type; "the sensory aphasic is a babbler." Until by progressive destruction of the sensory center the vocabulary is diminished the sensory aphasic often displays loquacity; his conversation, however, showing many mistakes in forms of expression; incorrect and distorted (paraphasic) words and sentences are unnoticed and the confusion of words in spontaneous speech may so increase as to render the meaning entirely incomprehensible (jargon aphasia). Sometimes under excitement, however, whole sentences may be correctly spoken.

The patient cannot imitate word sounds and hence cannot repeat what is said to him (contrast with the transcortical type in which repetition is fluent).

The function of "internal language" is much disturbed: The power to think in word symbols, to read understandingly and to write are all profoundly reduced.

There is a marked disturbance in spontaneous writing ability (verbal agraphia) corresponding with the reduction of auditory word perception. Spontaneous writing may be preserved to a certain extent, but the output is senseless and disordered. Both writing and reading are most profoundly affected when there is an accompanying word blindness.

The patient cannot write to dictation, but is able to copy: Copying is done *servilely*, the patient copying print in print, in reality *drawing* the letters; he does not copy print in script as does the motor aphasic.

A difficulty in finding names for objects shown: Objects may be incorrectly named, and distorted words are frequently used in naming them.

In Broca's aphasia the trouble is predominantly of articulation and writing (emission); in sensory aphasia all the elements of language are disordered.

Anatomical Basis.

A lesion involving the sensory cortical speech center in the posterior portion of the left first (and second) temporal convolutions.

SUBCORTICAL SENSORY APHASIA (PURE WORD DEAFNESS).

Clinical Syndrome.

A loss of the understanding of word sounds of what has been spoken, an adequate power of hearing being retained. The entire internal speech apparatus is undisturbed. The word conception remains clear; the patient can think in word symbols and can "talk to himself."

Spontaneous speech is absolutely free and clear, but the patient cannot repeat what is spoken to him. There are no paraphasic admixtures as in cortical sensory aphasia.

Ability to write spontaneously and to copy is unimpaired; writing to dictation is impossible.

There is no impairment of ability to read silently and aloud with full understanding.

Since in subcortical sensory aphasia only those fibers which convey *word sounds* to the auditory center are affected, various other sounds, including the *voice* sounds, are heard; the comprehension of *word* sounds alone is lacking. The lack of understanding is due to actual inability to hear word sounds.

The appearance of such patients is significant. They are quiet and observant; their glance shows suspicion or fear and their demeanor is one of restlessness. Their altered manner, the inability to repeat what is said to them and the marked diminution of spontaneous speech often cause them to be looked upon as dements.

Anatomical Basis.

A lesion of the medullar structures at the foot of the left first temporal convolution at a point where the fibers unite with the island of Reil.

TRANSCORTICAL SENSORY APHASIA.

Clinical Syndrome.

An abolition of the understanding of the word sense with a retained understanding of the word sound and an intact power of hearing, due to the division of the association tracts between the centers of "concrete conception" and the sensory speech center: The speech *sounds* as such are perfectly understood as shown by the *ability to repeat spoken words;* but the accompanying *concep-*

tion of their meaning is not awakened by reason of the division of the connecting pathways between the (lower) *speech* center and the (higher) realm of *conception.* The patient hears the word sounds as such, but they convey no meaning to him as is exactly the case in an unfamiliar foreign language.

The power of speech is actually retained; but is slightly impaired, in that the accuracy of the words spoken by the patient cannot be tested by his own disturbed power of understanding spoken words; hence, speech is frequently to some degree *paraphasic,* and there may be suggestions of admixtures of incorrect and distorted words of syllables.

The patient is able to read aloud: Reading aloud may be fluent, perfect and without effort, but there is no comprehension of what is read since the corresponding conceptions are not awakened. Reading may be compared to the reading of a foreign language which is not understood, but is composed of *similar word sounds.* In some cases reading is paraphasic.

Spontaneous writing shows to an increased extent the paraphasic disturbances of active speech and paraphasic distortions frequently render it incomprehensible.

Anatomical Basis.

As in transcortical motor aphasia the lesion is one severing the connections between the lower (sensory) speech center and the higher centers of conception and probably divides the fasciculus arcuatus at a point near the sensory speech center where the projection fibers are concentrated in a converging bundle.

DISTURBANCE OF WRITTEN LANGUAGE (ALEXIA AND AGRAPHIA).

In the domain of written language, as before indicated, the subject of alexia and agraphia formed for the earlier observers a point of entire disagreement; one school maintaining the action of a special optical word center and the other denying its existence.

In the main, however, both alexia and agraphia are of two well differentiated types, essentially different in both clinical phenomena and anatomical basis; these types are *verbal* and *literal.*

Verbal alexia and agraphia are the terms designating those forms of disturbances of written language which accompany all

forms of both motor and sensory aphasia in which the function of "internal language" is disordered. They are thus a part of the syndromes of the motor and sensory, cortical and transcortical aphasias, while in the subcortical types (pure word mutism and pure word deafness) they are absent.

As distinguished from the literal forms, verbal alexia and agraphia arise from disordered *word conception,* the conceptions of letters remaining more or less intact. Thus patients with verbal alexia or agraphia are able to recognize and to form individual letters and figures, but the meaning of their combinations into word symbols is faulty and distorted. Since the verbal forms of alexia and agraphia constitute a part of the aphasic complexes which arise from disorders of emissive and receptive speech, the lesions from which they result will be identical with those of motor (Broca's) and sensory (Wernicke's) aphasia.

Literal alexia and agraphia on the other hand are considered as separate entities and arise from a loss of conception for *letters,* and since, as claimed by Wernicke, reading and writing are accomplished by spelling, there is likewise a resulting inability in the emission and reception of written words.

In their *pure* forms literal alexia (word blindness) and agraphia are the rarest types of aphasic disturbances. But two authentic cases (those of Rieger and Sommer) of the coincidence of pure literal agraphia and alexia without essential disturbance of speech are on record. In these the patients had lost all conception of certain small and capital letters of the alphabet while the others were well retained and there was no essential speech disorder demonstrable.

Wernicke cites the case of a patient, who, after writing a well connected, and in the main, correct letter to a relative was unable to read a single word he had written (word blindness). Such phenomena are designated by some as "subcortical visual aphasia" and are usually accompanied by right sided hemianopsia; there is word blindness, well preserved spontaneous speech and good comprehension; the patient is able to write voluntarily and to dictation, but cannot read what is written either by himself or others.

The occurrence of ***pure isolated literal agraphia*** is disputed and in the main is not accepted as a distinct entity. Marie denies it

absolutely; Wernicke himself, who observed a case offering probably the nearest approach to the condition, denied the existence of a pure literal agraphia after prolonged observation of his patient which showed that what at first appeared to be a purely isolated writing defect was in reality accompanied by disturbance of internal speech. The same observer states the rule that if in agraphia there is shown any ability to form letters, no matter how bad the writing, the agraphia is *verbal* and not literal; hence not an isolated affection, but one belonging to a speech disorder.

Theoretically pure agraphia should consist in a more or less total loss of the conception of writing movements with inability to form written letters, figures and words, while, the power of emissive speech and the comprehension of spoken and written language remains practically intact.

Such a combination of preserved speech faculties with an isolated defect of written language is held by some to indicate the existence of special centers for reading and writing. Thus, Exner and Charcot believed that a special motor center for writing movements is localized in the base of the left second frontal convolution, and Dejerine, Bastian and Pick claim that the cortex of the gyrus angularis of the left lower parietal area is a center for the storing of "optical word pictures." Exner's contention of a special writing center is held to be untenable and is disproved by the fact that writing movements can be performed by the leg and even the tongue, when obviously the center of writing movements are localized in entirely different areas. The existence of a unilateral center for optical word memory pictures is denied by Wernicke and v. Monakow.

Wernicke positively states that if a center for the storage of optical memory pictures exists it is one merely for *letters* and not for words because the idea that all words seen can be visually stored is impossible and absurd; and furthermore that it is bilateral. He denies that the cortex of the gyrus angularis possesses any such function and doubts that the proper conceptions of even letters can be awakened unless their corresponding sound conceptions are intact; that is, that the appreciation of the individual symbols of the components of the alphabet, and hence the faculty of written language, is in reality dependent upon the function of the sensory speech center in the first temporal convolution.

Hence agraphia (according to Wernicke) is always due to a disturbance of *internal speech;* the result of disordered word conception, and hence transcortical in nature.

Without attempting to definitely decide the nature and localities of the possible centers concerned in disturbances of written language, Wernicke applies to these forms of emissive and receptive speech the same principles embodied in the consideration of the various forms of motor and sensory aphasia. Thus the theoretical centers concerned in alexia and agraphia are: the lower centers for the optical memory pictures of letters and conception of writing movements respectively, and a higher center of word conceptions. Alexia and agraphia result when the tract connecting the center for optic alphabet memories and the center of word conceptions is divided; pure literal agraphia would arise from a similar division of the tract directly connecting the center of optic memory pictures with the center of conception for writing movements.

On these theoretic considerations as well as on the part played by the cortex of the angular gyrus there is no agreement. The location of the lesion causing essential alexia and agraphia however, is definitely established as one lying in the lower region of the left parietal lobe; that is, the angular and supramarginal convolutions. The operation of the lesion as maintained by Dejerine is through the destruction of the cortical center for the optical memory pictures in the gyrus angularis or the fibers leading therefrom. Wernicke denies this and as proof of this contention calls attention to the fact that if such a center actually existed the occurrence of pure isolated alexia and agraphia would be frequent, whereas in reality they are extremely rare.

Wernicke describes the essential lesion of alexia and agraphia as a focus situated deeply in the medullary layers of the gyrus angularis, but which has no immediate or essential connection with the cortex of this area.

In alexia the lesion involves the deep sagital medullary layers of the gyrus angularis and destroys the inferior longitudinal bundle, optic radiation of Gratiolet and tapetum tracts, thus severing the connection between the speech centers and both occipital lobes with resulting word blindness and right hemianopsia.

In agraphia the lesion occupies the same general situation, but lies nearer the cortex in the true medullary substance (in front, above and external to the lesion of alexia) and divides the fasciculus arcuatus and fibers of the corpus callosum, in which lie the association tracts between the motor cerebral regions and the occipital lobes and lower parietal lobes of the same side, and between the sensory speech center and the lower parietal and occipital lobes of the same and opposite sides.

Marie claims that pure word blindness does not exist and that pure alexia does not occur clinically and anyhow it cannot be considered as a syndrome of aphasia at all, but an extrinsic complex resulting from damage to the posterior cerebral artery. These questions are not decided.

MARIE'S REVISION OF THE SUBJECT OF APHASIA.

The papers of Pierre Marie which in 1906 assailed the entire conception of aphasia as previously taught, have as their most radical departures: The absolute denial of the existence of a motor speech center in Broca's convolution; the splitting up of the previously designated "motor aphasia" into two distinct components; the demonstration of the importance and nature of the "lenticular zone"; the elimination of the angular gyrus as a center for optical memory pictures and of pure word deafness and pure alexia from the aphasic complex; the contention that the so called sensory speech center is in reality not a *sensory* center for the auditory image of words, but an intellectual center; and that lesions of the "zone of Wernicke" alone give rise to true aphasic disorders.

Figs. 4 and 5 show the areas of the cerebrum concerned in aphasic disorders as advanced by Marie: the lenticular zone and zone of Wernicke.

Marie maintains that the third frontal convolution of the left side does not play any special role in the function of language; that which is called motor aphasia or Broca's aphasia in reality is anarthria plus aphasia; that the aphasia of Broca is not a disease, not a clinical entity, but a syndrome, a superimposition of aphasia upon anarthria, or better, a simple combination of two distinct troubles, anarthria and aphasia. As to aphasia itself, Marie holds that there is only one aphasia, which he proposes to call Wernicke's

aphasia, and only one speech center diffusely localized in the left temperoparietal lobe, and that this center is a region of intelligence specialized for language, not a center of sensory images. The clinical splitting up of the aphasia of Broca into two elements, anarthra and aphasia, Marie maintains is verified by autopsy. One finds constantly lesion of the lenticular zone associated with lesion of the zone of Wernicke.

Marie describes the lenticular zone as an area included between two parallel lines drawn inward from the anterior and posterior fissures respectively of the island of Reil to the lateral ventricle. Its territory includes the caudate nucleus, the lenticular nucleus,

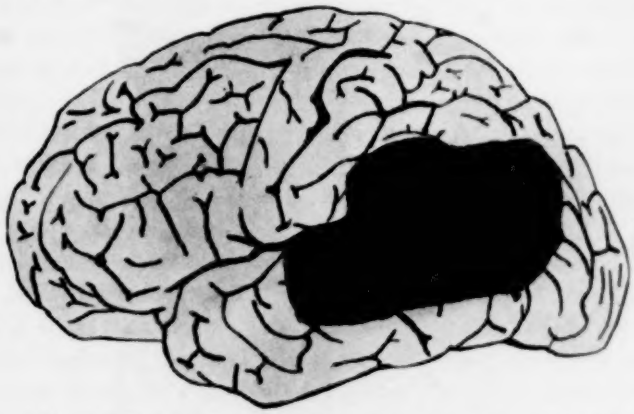

FIG. 4 (after description of Marie).—The shaded area denotes the "intellectual center specialized for language" and called by Marie the zone of Wernicke. It is from lesions in this area alone, according to Marie, that all true aphasic disorders originate. It is to be noted that with the exception of the third left frontal area, which is excluded, Marie's intellectual area is similar to the zone of language of the earlier writers.

the external capsule, the claustrum, the cortex of the island of Reil and the internal capsule. It is in this territory very distinctly separated from the third frontal convolution that the lesion that determines anarthria is especially situated.

Anarthria (the old aphemia of Borca) is characterized clinically by the loss of speech with preservation of the understanding of words, of reading and writing. It is produced by a lesion in the lenticular zone, interfering with the co-ordination of movements required for the formation and articulation of words, without inducing true muscular paralysis. Broca's aphasia is produced by a combination—the proportion varying with the case—of the

lesion of anarthria with a lesion of Wernicke's zone or lesion of the fibers coming from this zone.

The third left frontal convolution plays no part in the function

FIG. 5 (after description of Marie).—Marie's "lenticular zone" (shaded) in which is located the essential lesion of Marie's anarthria, and which when combined with a lesion of the zone of Wernicke gives rise to Broca's aphasia. The upper and lower limits of the lenticular zone have not been defined.

of speech. The true speech center is the zone of Wernicke; which must not be considered as a *sensory* center, but as an intellectual center. Wernicke's zone consists of the supramarginal and angular gyri and the feet of the first two temporal convolutions.

Lesion in this center determines in proportion its extent, and in addition to the disturbances of speech, deficient understanding of words, inability to read and write, as well as the disappearance of certain concepts of a didactic character. The foot of the first temporal convolution cannot be said to constitute a sensory center for the auditory image of words. Pure word deafness does not exist. Pure word blindness (pure alexia) does not occur clinically. The lesion producing it is a lesion of the posterior cerebral artery, not of the Sylvian artery as in the other aphasias. It is useless and inaccurate to drag in the angular gyrus, which cannot be recognized as the center of visual word images.

Marie maintains that there is no reason to preserve the classification of aphasia into the cortical and subcortical forms. As a matter of fact, aphasia due to focal lesions is never exclusively cortical. It is, moreover, advisable at present not to refer to the cerebral cortex the entire pathologic physiology of aphasia, since the subjacent white matter seems to play a part of perhaps greater clinical importance than the gray matter. If one insists upon classifying aphasia, the varieties of which are connected by a scale of innumerable transition forms, the best division would be into (1) *intrinsic* aphasia, in which Wernicke's zone or the fibers coming from it is directly and considerably affected by the lesion. (Broca's aphasia, Wernicke's aphasia), and (2) *extrinsic* aphasia, in which Wernicke's zone with its fibers is not directly involved.

For Marie there is only one aphasia, the aphasia of Wernicke. The term sensory aphasia, he thinks, should disappear. The aphasia of Wernicke has for its substratum lesion of the zone known by his name. Intrinsic aphasia is accompanied by trouble of the internal language and intellectual deficit. The other alteration of language, anarthria and pure alexia, are extrinsic syndromes. Pure alexia is dependent upon lesion of quite another vascular territory than aphasia. Aphasia is dependent upon lesions of the Sylvian artery, and alexia upon obliteration of the posterior cerebral arteries. He maintains that in autopsies upon patients with Broca's aphasia there is a double lesion. One causes the anarthria and the other the trouble of internal language, of reading, and of writing. The terms Broca's aphasia, ataxic aphasia, total aphasia, designate progressive degrees of the same syndrome.

The three important factors in the discussion are: (1) is Broca's area, the foot of the third frontal convolution, the center in which is stored the memories of phonetic speech, articulatory, kinesthetic memories? In other words, is motor aphasia or Broca's aphasia real aphasia at all? Is there a well defined, though not sharply marked syndrome to which the name of Broca's aphasia is given, upon what is it dependent anatomically? (2) Do lesions of the so-called lenticular zone give rise to a simple complex, parallel to that of so-called subcortical motor aphasia, the anarthria or aphemia of Marie? (3) Is the area of language the area in which memories and words seen and heard are stored, and from which alone they can be evoked by peripheral stimuli, or is the storage of such memories a function of the anterior pole of the brain (the so-called psychic sphere) or of the whole brain itself?

It must be granted that there is no adequate clinical or anatomical evidences for considerating Broca's center to be the seat of memories of articulation. There does not exist in the literature a case of Broca's aphasia clinically in which the lesion was confined narrowly to the foot of the third frontal convolution, nor does the brain upon which Broca based his original thesis show it. It is probable that Marie is correct in assuming that the third frontal convolution is not an area in which are stored memories of articulation and it may be stated that our present conceptions of the zone of language must be modified in so far as denying the existence of the storage of articulatory kinesthetic memories in the anterior poles, the foot of the third frontal convolution.

It is admitted by everyone that there is an aphasia, which is clinically distinctly characterized, to which the name motor aphasia or Broca's aphasia is given. Is it sensory or Wernicke's aphasia plus anarthria or aphemia? If it is true that the foot of the third convolution is not the seat of phonetic memories, then Marie's explanation is probably the correct one. Marie admits that Broca's and Wernicke's aphasia are clinically two distinct varieties. The distinction between the two is not always very sharply drawn, but, as a rule, certain characters permit the distinction to be made. Those who have contended that the symptomatology of the two forms of aphasia are very unlike have pointed out that it is a mode of copying that distinguished motor aphasia from sensory

aphasia. It is admitted by everyone that the motor aphasic has some word deafness and some word blindness, but it is maintained that he copies print in script while the sensory aphasic copies servilely. There has been recent important testimony to show that this is not true.

In regard to the mental defect of aphasic patients, whether they have sensory or motor aphasia, which Marie has emphasized, this has received due consideration in every treatise on aphasia, and there can be no doubt of its existence; considering the lesion of the brain in the majority of cases of aphasia, the wonder is that the mental defect is not more pronounced.

That lesion of the so-called lenticular zone gives rise to the symptom complex parallel to that of so-called subcortical motor aphasia there can be little doubt. The preservation of internal speech is the distinct feature in each of them. Whether the loss of speech capacity which results is called anarthria or aphemia is not of prime importance. But the term aphasia should be reserved for those cases in which internal speech is disordered. Those cases in which the internal speech is not disordered and in which there is inability to speak (pure motor aphasia of Dejerine; pure word mutism of Wernicke) should be classified as cases of anarthria or aphemia. This anarthria may exist from the onset of the patient's illness, that is, there may never be any true aphasia associated with it.

The answer to the third question in regard to the storage of memories of words seen and heard cannot be given positively at this time. We do not know how memories are localized, or indeed that they are localized at all. We assume that cells undergo modification from each impression that reaches them, and that the cell reacts in a different way to different impressions at different times.

The position taken by Marie is not so revolutionary as has been commonly supposed. In the first place, it has never been seriously denied that there is not a certain amount of mental defect in practically all cases of true aphasia. This mental defect varies in different cases, but it has been generally recognized. In the second place, the anarthria or aphemia of Marie is in reality the same thing as the subcortical motor aphasia of Wernicke, and the pure motor aphasia of Dejerine. The important contribution that Marie has made is that the foot of the third frontal convolution

(Broca's convolution) is not the seat of articulatory kinesthetic memories, and is not an integral part of the zone of language, and that, therefore, destruction of it does not cause aphasia. It is not enclosed in the lenticular zone of Marie.

The service done by Marie with regard to the subject of aphasia has been great, in spite of the perhaps just critism that he has torn down without building up.

In the last analysis, it still remains to be seen as to which teaching, that of the old or the new schools, will in the main prove the correct one.

STATE CONTROL OF STATE HOSPITAL LIBRARIES.

By EDITH KATHLEEN JONES,
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In a previous paper * statistics were given from ninety-six hospitals concerning their libraries. With these statistics came many letters from the various superintendents deploring their scarcity of books and their lack of trained librarians, and giving as the reason the want of funds sufficient for the purpose. This reason strikes at the root of the matter, for a good, readable library cannot be maintained without a liberal appropriation for the purpose and the supervision of someone who knows books. A mere collection of books donated from the attics of friendly patrons does not constitute a library in the modern sense of the word, and it is safe to assume that if we ourselves relegated these volumes to the attics because we did not care to read them when we were well and out in the world, we need not expect our friends to hail them with delight when they are sick and in hospital. And while the first assistant physician, the stenographer, or even the janitor may be able to give out books quite satisfactorily in addition to his other duties, he can hardly be as efficient as a trained librarian who devotes her whole time to the problem of building up the library.

On the other hand, we cannot blame the state if it does not see the necessity for providing libraries and librarians in eleven state hospitals (as in little Massachusetts) or in sixteen (as in larger New York), or even in the three or four of some of the Southern States, at an annual cost of not less than $800 each, including books, periodicals, binding and librarian's salary. It is obvious that in some states the cost would be enormous, and, indeed, prohibitive.

But with these letters came two from Iowa and Minnesota suggesting a way of escape so thoroughly reasonable, modern and altogether obvious that one wonders that every state in the union

* Libraries for the Patients in Hospitals for the Insane. By Edith Kathleen Jones. Am. J. of Insanity, LXVIII, No. 1, July, 1911.

did not long ago solve its institutional library problems along the same lines. In Iowa the "Board of Control" has assumed the charge of all state institution libraries, sending its own librarian to organize and catalogue them and give training and advice to those in charge. Minnesota has met her problem a little differently; her Public Library Commission sends out the organizer, who, in addition to the work done in Iowa, is allowed to select traveling libraries for the institutions. These two states seem to have been the pioneers in this cooperative movement, but several others in the west have followed suit. Indiana stands ready to offer the services of her Public Library Commission to the hospitals as well as other state institutions, though she was never called upon for help in the former till January, 1912. In Nebraska, the last legislature made a direct appropriation to the Public Library Commission for the establishment and maintenance of libraries in the various state institutions, the money to be spent entirely at the discretion of the library commission. They have already bought about three hundred volumes for each of their three hospitals, and will build up the individual libraries rather than try the traveling library plan. Wisconsin finds the same problem—few books and no organization; as her Free Library Commission has no funds at its disposal for institutions, it can help only by reorganizing such libraries as already exist and giving training and advice.

These are only a few of the states in which interest has been aroused in the library question in state institutions, but they seem to be about the only ones which are including the hospitals and asylums in the scheme. Many other states are providing reading matter for their prisoners, but as yet the old idea seems to prevail, that insanity means imbecility and therefore the inmates of the state hospitals are incapable of any mentality.

It will be seen that in all these states except Iowa the Public Library Commission has simply added the state institutions to its list for supervision, traveling libraries, etc., and in the western states, where the hospitals as well as the town libraries are comparatively few and the territory large, this would seem to be the best plan. But in our smaller, more crowded eastern states, where the library commissions are already over-taxed to fill the demands upon them, the addition of from eight to sixteen special libraries means another burden involving much extra labor and at least

one more librarian. It would seem that in such states the Board of Insanity, or its equivalent, should assume entire charge of this branch, hire its own librarian, and develop its own institutional and traveling libraries, of which it should have complete control. Its librarian should visit each hospital in turn; put in order what books there are; add new ones at her discretion; advise the assistant in each hospital regarding the best ways of interesting the patients in reading; select and buy traveling libraries composed of biography, illustrated books of travel, out-door books, popular science comprising books on birds, flowers, trees, animals, astronomy, etc. This institutional librarian should have her headquarters at a center, either at the State House or in one of the most accessible state hospitals, and keep her records there.

The traveling libraries should be sent from the center and returned to the center. The public libraries have so thoroughly demonstrated that any efforts to reduce expense of transportation by transferring from one point to another without going back to the center only results in loss and damage and irresponsibility, that it is useless to try any other system—unless the librarian transfers both the center and herself for the time being to that hospital which is to send out the traveling library. At the center, the books would be unpacked, checked, cleaned up, rebound if necessary, and got ready for the next hospital. Strong packing boxes holding about sixty books, with handles on the sides and strongly hinged and padlocked lids, are not expensive and are easily packed and handled. They could be made at one of the hospitals, and possibly the books might be rebound at one of the state institutions, thus saving a little in cost. The length of time allowed each of these libraries in a hospital would depend somewhat upon the number of reading patients, but probably would average about three months.

An objection to this plan will at once be made that three months is a long time to wait for new fiction. This may easily be met by buying the three or four best books of each month in such quantities that each hospital may have one or more copies immediately for its individual library. And after the traveling libraries have gone the rounds, they too might be distributed among the various hospitals. In this way each hospital would be adding little by little to its own collection.

As to the selection of books, what was said in the paper referred to above concerning the sort of reading for hospital libraries applies equally to this plan. All fiction should be censored, that nothing morbid be put into the hands of the patients. This is one very good reason why the State Boards of Insanity should have control rather then the Public Library Commissions. In those states in which supervision of the prison and reformatory as well as the hospital libraries is in the hands of the institution librarian, separate traveling libraries for fiction should be maintained, although the other books, especially those in biography, travel and the handicrafts would be equally interesting and valuable to both classes.

There is one point which cannot be over-emphasized: the need of an intelligent assistant in each hospital who is well-read and knows books, and who, if not already trained in library methods, is capable of receiving suggestions and of being interested in the work. Anyone can give out books, but not everyone can give them out intelligently, and only the trained librarian can appreciate the vast amount of wasted energy represented in a library which is not kept up. Of course the ideal situation is that in which each hospital has its own library and trained librarian, but as has already been stated, this is often impossible in state institutions because of the expense involved. But a compromise might be effected. In most hospitals the stenographer has charge of the books in addition to her own duties. Why not employ, instead, a trained librarian who is also a stenographer? The library schools throughout the country are graduating just such girls every year—girls college-bred and trained to use their brains; trained too, not only in library work proper, but also in shorthand, typewriting, and the modern methods of filing which are of the greatest value to the hospital superintendent with his innumerable letters, bonds, case-records, reports of other hospitals, etc., all of which must be kept ready for reference at a moment's notice. Such a business-trained, intelligent woman would be able to attend satisfactorily to both branches of hospital service, and her salary would be but little more than that of the average stenographer who knows only her own branch. And the institution librarian would breathe freely while upon her rounds, knowing that she left behind her a person who would co-operate intelligently with her efforts to reach the patients.

Besides providing books and trained service for the patients in these state hospitals, this scheme might well be enlarged to also include the medical department. Of course there are certain books on psychiatry, psychology and general medicine which should be in every hospital for the immediate use of the medical staff; but there are many others to which it is desirable to have access from time to time, which are too expensive or not enough used to duplicate. It might be well for the librarian to keep a catalogue of all the medical books in the different hospitals, add to them upon recommendation of the various superintendents, and upon demand to send any book to any other hospital in the state. This would be especially advantageous for those hospitals which are not near any of the large medical libraries, and would prevent duplicating. Then, too, some of the medical periodicals, especially the more expensive foreign ones, might be subscribed to by the state, the institution librarian ordering, receiving, checking and sending them in turn to the various hospitals for a week or so at a time. The bound volumes of these could be distributed among the different hospitals, each having one or more sets.

The advantages of this scheme of state control are many, but it will readily be seen that the post of institution librarian is no sinecure and should be well paid. This brings us to the cost of organized, centralized, cooperative state control versus duplicated, individual libraries. In 1910, thirty-six out of sixty hospitals in the United States claiming to have libraries paid $4725 for books and periodicals for their patients—an average of $132 per hospital. The other twenty-four did not add one cent's worth of reading matter, so far as could be learned, except what was given them. Just half of these thirty-six hospitals paid $100 or over, two of them reaching $500, and the other eighteen ranged from $25 to $75 each. Now it is perfectly apparent that not much can be done in any one hospital in the way of books and magazines for $132—still less for $25. But we will suppose a state maintaining ten hospitals and asylums expending on each $130 for reading matter—an aggregate of $1300. For that amount an institution librarian could purchase about 800 volumes for the use of all ten hospitals instead of eighty books for each. Now suppose each of these ten hospitals employed a librarian in addition to its stenographer; their combined salaries would add about $5000 a year to the state ex-

penses. As a matter of fact, however, a good library with a competent librarian should cost at least $800 a year exclusive of medical books and periodicals, or $8000 in our supposed state of ten hospitals. On the other hand, for from $3000 to $4000 a year, this same state could maintain one first-class institution librarian; ten traveling libraries of about sixty volumes each; about 400 volumes of new fiction divided as soon as published among the ten hospitals; the best current periodicals; medical books and periodicals; the expenses of binding and expressage—and give efficient service and equal advantages to each hospital. Further, by replacing the stenographer with a librarian who is able to combine the two offices—which would be quite possible where the state takes charge of the buying, cataloging, classifying, etc., thus relieving the hospital librarians of the duties which take the most time—the extra salaries of individual librarians in addition to stenographers would be saved.

Therefore, as a matter of economy as well as of increased efficiency, organized state control would seem to present the most practicable means of maintaining our institution libraries.

NEW ENGLAND SOCIETY OF PSYCHIATRY.

SEMI-ANNUAL MEETING HELD AT McLEAN HOSPITAL, WAVERLEY, MASS., SEPTEMBER 28, 1911.

The President, Dr. Henry R. Stedman, in the Chair.

SYMPOSIUM ON DEMENTIA PRÆCOX.

I. A Comparison of Personal Characteristics in Dementia Præcox and Manic-Depressive Insanity. Earl D. Bond, M. D., and E. Stanley Abbott, M. D., McLean Hospital.

(See AMERICAN JOURNAL OF INSANITY, January, 1912, page 359.)

II. The Charting of Heredity with Special Reference to Dementia Præcox. E. G. McGaffin, M. D., Taunton State Hospital. (Abstract.)

The subject is brought up at this symposium as to the value of pedigree charts as an adjunct to case records. Dementia præcox shows a large percentage of heredity, Kraepelin placing it as high as 70%, so the subject of charting is not out of place at this time.

Much careful work is being done at the Eugenics Record Office at Cold Spring Harbor, L. I. There, the making of charts is done with much care and some very interesting ones have been prepared. New Jersey has also made a good beginning in this matter and Massachusetts is by no means, at the end of the procession.

The work is an important one, bringing out the heredity in a case at a glance, besides adding to the completeness and clearness of our records.

Uniformity in charting is lacking, however, and this is the important item to be corrected, so that all may be better understood. It is to be hoped that committees from the various state and national societies will rectify this. It is the present need and more and better work can be done under a uniform system.

(Five charts accompanied the paper, illustrative of the author's present method.)

III. Cyanosis in Dementia Præcox. Wm. B. Cornell, M. D., Danvers State Hospital. (Abstract.)

The following is presented as a preliminary report on the condition of the skin as found in dementia præcox, with special reference to cyanosis.

The general cyanosis especially of the hands in dementia præcox cases stands out in contrast with those of other mental diseases. In 173 cases of dementia præcox examined within a few days in the hospital at Danvers, 75% or 133 showed some grade of cyanosis, varying from a mild degree to an extreme dusky blue. The distribution varies; the hands, feet or body may show the most involvement; not so often the face and lips.

The catatonic forms show the highest percentage of cyanosis as well as the greatest intensity; in 42 cases, only 4 failed to show the sign. The hebephrenic type stands next in order; in 31 csaes 8 had no cyanosis. Lastly the paranoid group, in 37 cases of which 19 had no cyanosis.

In the same case the degree of cyanosis varies from day to day, or week to week. It seems most probable that this sign occurs more frequently and with greater intensity early in the disease and tends to disappear as recovery or chronicity ensues.

Examination of a relatively smaller number of manic-depressive and imbecility cases shows cyanosis to be quite uncommon.

It is believed that in cyanosis we have an important psychiatric sign; first, as an aid in the diagnosis of dementia præcox, and second, in the differential diagnosis of this disease from manic-depressive and imbecility.

IV. Remarks on the Prognosis of Dementia Præcox. H. W. Mitchell, M. D., and A. W. Stearns, M. D., Danvers State Hospital. (Abstract.)

Drs. Mitchell and Stearns presented a paper dealing with facts concerning the outcome in a series of dementia præcox cases admitted to the Danvers State Hospital during the years 1901-1905, inclusive. The diagnoses were made at the daily staff-meetings which were begun prior to the earlier date. Six years have elapsed since admission of the last case of the series thus allowing time for the formation of a reasonably accurate estimate of the terminal condition.

Three hundred and ninety-five cases were considered. The present condition of 79% of the cases has been ascertained, the majority of the remaining 21% were deported and could not be traced. Of 187 discharges that have occurred in the series, 10% were discharged as "Much Improved," or "Capable of Self-Support." Of the cases traced, 25% have remained continually in hospitals since admission; 24.4% have died; 65.3% are now confined in some hospital; 2.5% are boarded out in private families by the state board; 4% are living at their homes and are regarded as more or less demented; 3.2% are living at home and are reported as well by relatives.

A study of the case histories of the latter group together with a review of the staff-meeting opinions reveals some facts of interest and significance in both the diagnosis and prognosis of dementia præcox. With one exception, that of a woman of 35, showing a suspicious, paranoid reaction while at the hospital, all of the number reported well at present, were cases of first attack and of well marked depression, in some cases the patients becoming stuporous, resistive and refusing food. Hallucinations were not positively detected in any of the group. The attacks were all of short duration, the average period of hospital residence being 8 months. In each instance the attack was considered by relatives as being sudden in onset, and following the period of depression, reasonably good insight without emotional or intellectual deterioration was always observed.

In all of these cases there was a distinct difference of staff opinion concerning the probable diagnosis. In over one-half of the cases a majority of the staff preferred the diagnosis of manic-depressive insanity. Everything considered, it appears that these few cases represent either a mistake in diagnosis made by staff majority or an over-ruling of the majority by the minority rather than a series of recoveries from dementia præcox.

Care should be exercised in making the diagnosis of D. P. in the first attacks of irregular depression, characterized by sharp onsets, freedom from hallucinosis and stuporous states in which mutism, muscular resistance, food refused, etc., may be misinterpreted by superficial observers as positive evidence of the catatonic symptom-complex. These symptoms have been observed by the

writers in alcoholic hallucinosis, general paralysis, epilepsy, senile conditions, and manic-depressive insanity and cannot be regarded as pathognomonic of any mental disease.

V. Recoveries in Dementia Præcox. Theo. A. Hoch, M. D., and Ray L. Whitney, M. D., Worcester State Hospital. (Abstract.)

According to Massachusetts State Hospital statistics, 113 patients suffering from dementia præcox were recovered within the past ten years, showing either that our attitude toward dementia præcox has changed or that we are dealing with diagnostic errors. In a large hospital experience one frequently finds patients who appear to have recovered completely from dementia præcox and at Worcester 26 patients were so discharged. The records of these and nine others, who had previously recovered from some other mental trouble, but were later diagnosed as dementia præcox, were critically analyzed. The following conclusions were reached:

Recoveries in dementia præcox should be considered with suspicion, as a closer analysis of the records of such patients shows that they have recovered with "incomplete insight," "poor judgment," "slight indifference," lack of spontaneity," etc. Such patients cannot, of course, be considered as recovered, the condition, at best, may be termed a remission.

A few patients had unquestionably recovered, and in these all the recorded evidence leaned strongly toward manic-depressive insanity. Carefully prepared charts, grouping the typically manic-depressive symptoms together, also the dementia præcox symptoms, in the same case, showed a preponderance of the former, and to-day we would undoubtedly have made a diagnosis of manic-depressive insanity.

Other cases seemed to show recovery from an alcoholic or other psychosis with a subsequent attack of dementia præcox with deterioration, showing the possibility of the existence of two psychoses at different times in the same individual. Again, the question of a combined psychosis was at times suggested by the records. Many of the cases were markedly atypical and could be classified with difficulty. From our study we are led to conclude that recoveries do not occur in dementia præcox.

VI. The Determining Factor in the Release of Cases of Dementia Præcox from Institutions. Edwin A. Down, M. D., Hartford, Conn. (Abstract.)

Upon inquiry, it is found that many patients are allowed to return to their former environment for the reason that they are "harmless." Not that they have recovered their reasoning power and returned to a normal standard, but merely, that they are not likely to manifest any propensities in the direction of becoming a menace to life or property. This is the impression left upon the layman who has no argument to present in opposition to the recommendation of the asylum official. On the contrary, we can discover results both immediate and remote which are pernicious to society in general, and disastrous to offspring.

If we could, consistently, serve an injunction on time, and secure a stay of proceedings, we could discuss with profit this phase of an important subject to which only this brief reference can be made; for the study of eugenics is becoming so rapidly disseminated as to create an urgent demand for its literature, owing to its predominance in many fields of sociological discussion.

Those of us who are much in court, have occasion to pass upon cases in which the individual has been charged with the crime of assault, exposure of person (particularly to young girls), addressing women on the street; setting fire to property, and other minor offenses.

Urgent appeals from relatives and friends sometimes secure the release of a patient, though many times this is against the judgment of the physician who confidently expects the return of the patient after a longer or shorter period.

Whatever the manner of the removal, it would appear that many insane persons set at large, especially those laboring under the burden of a tendency toward a degenerative psychosis, become a menace to the future welfare of the race; and, if for any reason, either philanthropic, economic or humanitarian, these persons must mingle with the general population, proper steps fulfilling legal requirements should be taken to prevent the propagation of their species. Prevention is the slogan of the hour, and fills a conspicuous position in the medical literature of the day.

DISCUSSION ON SYMPOSIUM.

Dr. E. Stanley Abbott, Waverley, Mass: In view of the importance assigned to make-up in the causation of dementia præcox, one wants to consider whether or not there may not be the same make-up in other diseases as well. A similar study might profitably be made of make-up in the imbecile, especially the high grade imbecile, in whom the mental effects sometimes don't show until the later years of childhood or early youth. They too have traits which make them unable to adjust themselves to their environment, and which might lead to the formation of harmful complexes. It is worth while to compare the make-up in them with that which is found in many dementia præcox cases.

. . . . Make-up as *the cause* of dementia præcox is after all a rather sterile field. A more fruitful one would be the study of the influence of the traits as we find them, whether good or bad, in the production of symptoms in the later psychosis. If the patient has certain trends before the psychosis appears, do those same trends appear in the patient throughout the course of the disease; are they visible in the patient when he gets demented; do they have any effect in modifying the symptoms; if they do, what is the effect; or are they entirely over-ridden by the disease?

The important problem with regard to make-up seems to me to be rather that of its manifestations during any psychosis than of its casual relations to one particular psychosis.

Dr. Everett Flood, Palmer, Mass.: I suppose it is pretty well known what has been done in other states in the matter of charts to record inheritance and pedigrees. We began at the hospital in Palmer about a year ago to have a field worker so that we now have the records of a large number of pedigrees and inheritances which adds materially to our histories. They are very important. The charts that Dr. McGaffin has shown here are made in pen and pencil, but regular forms are made which have been agreed upon by the Eugenic's office, and we use these accepted forms so that we indicate by different color stamps the various conditions. This makes a very complete record. If many workers were out there might be interference, etc. From this, it is pretty evident that every institution in the state can't have a field worker. Field work among the feeble minded has been used to a great extent and has proved very helpful. Personally, I think there should be

some central control of this work, and that it could properly come in the domain of the State Board of Insanity, and that some organized plan should be arranged so that certain institutions could feel justified to ask for an appropriation to pay the salaries and expenses of one or more field workers. I had in mind to ask the opinion of others about this, whether some action cannot be taken by this Society in the way of a suggestion to the State Board of Insanity.

Dr. Henry A. Cotton, Trenton, N. J.: Field workers were first employed by the Eugenics Record Office to do this work of heredity. In New Jersey at the State Epileptic Village at Skillman and the Feeble Minded Colony at Vineland, they had a dozen or more. At about the same time the State Hospital at Trenton employed field workers. (Showed and described charts.)

I have one case here especially interesting, a dementia præcox case, which the field worker studied. She got information concerning 3300 members of this family. Marriages and intermarriages for seven or eight generations. 70 were insane. A large proportion were neurotic, alcoholic, etc., and forty were patients in the State Hospital at Trenton. These records are exceedingly valuable. One generation manic-depressive which in later generations develops dementia præcox.

Dr. E. Stanley Abbott, Waverley, Mass.: Confirming Dr. Mitchell's and Dr. Hoch's papers is a recent article by Dr. Schmid of Lausanne.*

. . . . Out of 455 discharged cases of dementia præcox, 76 were discharged as recovered. 70 were discharged as "recovered with defect," that is, not quite normal. He was able to trace personally, visiting them in their homes, 68 of the 76 "recovered." He found on very careful investigation of these 68 cases, that 25 still showed clearly some residual symptoms of dementia præcox, although they had been reported by the family as perfectly well. There were 43 in which there were no mental symptoms which could be found after careful investigation. On looking over the records of these cases, it was clear that a diagnosis of manic-depressive psychosis should have been in 14 of them. That left 29. 22 of those he found fitted in very well with the descriptions of amentia, which we here in this hospital are

* Hans Schmid, Ztft. f. d. ges. Neur. in Psych. Vol. 6, No. 2, pp. 125-195.

accustomed to diagnose as confused, or mixed forms of manic-depressive psychosis. Schmid ruled them out of the dementia præcox group. That left 7 cases, of which 5 were either hysterical or belonged to the "prison psychosis," and one case had complete amnesia for the whole attack, and was probably not dementia præcox.

Out of 455 dementia præcox discharges therefore there was one recovery. That case had been for 7 years in the hospital, and was throughout regarded as a dementia præcox case. She had been at home for 7 years, perfectly well so far as he could learn from her relatives or determine by his own examination and he couldn't find anywhere a loop-hole by which he could call it anything else than dementia præcox. He is nevertheless uncertain after all as to whether there might not be some other form of mental disease than dementia præcox. This accords very well with Dr. Mitchell's findings, that our recovered dementia præcox cases had been wrongly diagnosed in the beginning and that they had not really been dementia præcox cases.

Dr. A. E. Brownrigg, Nashua, N. H.: Five or six years ago I presented a paper at a meeting of another society suggesting that there was a possibility of recoveries in dementia præcox in the early stages. At that time I had observed some four or five cases that had made apparently a perfect recovery from an attack of dementia præcox of not very long duration, but of very distinct characteristics. I did not diagnosticate the affection without concurrence with other capable men. Although some of the cases do not present all the symptoms of dementia præcox, I think there are several cases that could not be classed reasonably in any other group. In view of the statistics, therefore, which we have here this afternoon, I might be inclined to think that certainly I made a mistake; but as I am naturally tenacious to my opinions after carefully forming them, I think that perhaps there is still a possibility of recovery in dementia præcox cases after they have been sick a year, or less. I think those who have been in asylums can remember some of these cases that have been sick, and who have partially recovered and remained as a partially demented patient in the institution, without further deterioration, for five, ten, and fifteen years. What I contend is, that I have seen several cases that have been arrested early, and, whereas I could

not say that there had not been some deterioration from what those young people would have arrived at in their mental constitution if they had not been sick at all, yet they were able to support themselves, and an examination by an alienist would not reveal any defect; they were smarter than some of their associates, and I think would be considered reasonably recovered. In the same way we know if hysteria runs on for many attacks, there ensues an evident instability in the constitution which renders that person mentally unstable, and practically unfit. Yet we see, also, hysterical attacks in young girls who practically recover, and do not have a recurrence. My opinion and belief is, that dementia præcox is a sad disease, and usually produces dementia; but that if some are taken early, and arrested soon, the arrest will show no distinction from what we ordinarily term as recovery.

Dr. S. C. Fuller, Westboro, Mass.: A tendency to pessimism regarding the outcome of dementia præcox seems to prevail in the papers presented to-day, a sort of feeling that once a dementia præcox always a dementia præcox. The errors of diagnoses among the recovered cases, discussed in the paper by Drs. Mitchell and Stearns, have been well shown. In only one of these recovered cases, it appears, could dementia præcox be considered in the light of subsequent histories. Although possibility of errors in diagnosis among the 308 cases have been pointed out, an analysis of such cases as were accessible, done in the same way as with the 10 recovered cases, would have been interesting data. I believe we would all be interested to learn just what percentage of the 308 cases in the opinion of Drs. Mitchell and Stearns were cases of dementia præcox and what percentage was probably faultily diagnosed.

Dr. A. W. Stearns, Hathorne, Mass.: I think we must admit the possibility of error in diagnosis, but this error would be uniformly distributed and would not affect our conclusions. At present we get a complete life history of only those patients who are admitted in advanced age, while by co-operation between different hospitals, we would be able to follow up our cases and make our records more complete, and so add to their value.

If the work of the field worker is of value enough to warrant their overcoming the tremendous obstacles in their way, it seems to me that we should make an effort, proportionally much less, to follow up cases leaving the hospital.

Dr. Isador H. Coriat, Boston, Mass.: The crux of the whole question seems to be in the diagnostic difficulty as to whether or not the disease is dementia præcox. The greatest difficulty is in differentiating the beginning cases of dementia præcox from the mixed conditions of manic-depressive insanity. At times in some cases under my observation it has taken weeks and months before I could make up my mind whether I dealt with dementia præcox or the mixed type of manic-depressive insanity. I feel that if in the beginning of dementia præcox, a complete and proper psycho-analysis could be made, in many cases recovery would then be possible. Of course it all depends on the accessibility to analysis and the longer the delay, the more grave becomes the prognosis and less accessible the patient.

Dr. P. C. Knapp, Boston, Mass.: The prognosis of dementia præcox has interested me for some time. It seems hardly scientific to maintain, that if a case of apparent dementia præcox gets well, our diagnosis is at fault; yet, some of the remarks seem to imply that such should be our attitude. As a matter of fact, I see a certain number of cases that are strongly suggestive, to say the least, of dementia præcox, and yet some of these cases get well and stay well for many years. We lack, however, positive diagnostic data which may enable us to say, with as much certainty in the early stages, that this is a case of dementia præcox, as we can that this is a case of general paralysis. It is often difficult to determine whether we are dealing with hysteria, dementia præcox or some toxic or infectious condition.

Dr. Edward B. Lane, Boston, Mass.: I have been interested in observing a group of cases, not insane, who show some of the symptoms of dementia præcox. These cases are unable to concentrate their attention for any length of time, are unable to read and find it impossible to carry on sustained thinking. There is more or less depression consequent from this state. This condition appears to come on without mental shock. Some of these cases have made a good recovery; others have gone on and developed into dementia præcox.

If we assume the toxic theory for dementia præcox, may it not be that these partial cases receive a lesser dose of the toxine?

Notes and Comment.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION AND THE CONGRESS OF PHYSICIANS AND SURGEONS.—The complaint has sometimes been made by self-appointed critics of institutions for the insane. that the medical officers of such institutions suffer materially in their professional work as compared with physicians attached to general hospitals, by reason of their lack of familiarity with what is accomplished by the rest of the profession. In the pressure of institutional life, often in the country and far away from the privileges of an active medical society, deprived of the stimulation to thought in purely medical channels, by listening to papers, by participating in debates, or by free access to literature, it has been asserted that many alienists become atrophied on the professional side in matters not pertaining to psychiatry and degenerate into administrative officers and keepers of institutions.

It cannot be denied that in some instances superintendents of institutions, through the stress of pioneer conditions and unfavorable circumstances, have been too much absorbed in the material side of their work to keep themselves thoroughly abreast with the scientific work of the profession. As a result their institutions have suffered and undeserved reproach has been brought upon alienists as a body. Hence it has always been deemed desirable that the members of the American Medico-Psychological Association should ally themselves with local Medical Societies and thus keep in organic relation with every agency calculated to advance the welfare of the medical profession in general. In many communities, in fact, the officers of institutions for the insane constitute the backbone of the profession, and become a rallying point for advance in medical matters. They lead rather than follow.

For this reason it has also seemed equally desirable that the American Medico-Psychological Association, as a body, should occupy its honorable and fitting place by the side of other national

organizations, and participate in all efforts to increase medical knowledge. On this account, at the Richmond meeting, arrangements were made whereby the Association became one of the component societies of the Triennial Congress of American Physicians and Surgeons—a connection regarded by all equally advantageous to the Congress and to the members of the Association. It is conceded that the meetings of the Congress since that time have offered to the members of the Association an enviable opportunity to familiarize themselves with advanced work in the various departments of General Medicine, especially in Neurology and Psychotherapy.

In the proceedings of the Association at the Denver meeting we regret to notice the introduction of a resolution to dissolve this relation, largely, it would seem, because of the high cost of membership in the Congress. If it be true that the Association finds itself unreasonably taxed, to pay the expenses of the Congress it is proper to confer with the governing Committee of the Congress to secure a readjustment of the conditions of membership, to the end that there may be no just grounds for any complaint of an excessive burden. This should receive immediate attention from the Committee appointed at Denver to consider this matter.

It seems, however, in any event most desirable that our connection with the Congress should not be dissolved. The movement of the Association to ally itself with the advanced work and foremost medical thought of the country was certainly a step in the right direction. If mistakes have been made in carrying into effect this plan it will be easy to rectify them by proper representations to the constituent bodies of the Congress. The editors of the AMERICAN JOURNAL OF INSANITY feel that to relinquish membership in the Congress at this time will be a backward step in the history of the Association. We need to know more of the work of other national medical associations, and they in turn will receive equal benefit from a better knowledge of our work. Such association with other national societies has been and will continue to be mutually helpful. Psychiatry is not an isolated branch of the healing art. On the contrary, it takes hold of all departments of medicine to a greater degree than any other specialty, and they in turn must look to us for guidance.

The Association needs every aid in its effort to develop the old-time asylums into modern hospitals for the study and relief of mental disorders. Should it not welcome closer association with medical men of every class and every specialty to the end that more may be accomplished in every hospital for the insane throughout the land?

BOARDS OF CONTROL.—Those interested in the management of institutions for the insane must be much impressed by the development during the past ten years of central boards of control.

Already not less than a dozen institutions in as many different States are under more or less specialized boards of control. One of the first States to adopt this system was the State of Iowa. The board of control in Iowa has direct control of all the institutions for the insane; those designed for charitable work like schools for the blind, deaf and the feeble minded; the orphans' homes; the industrial schools and the penitentiaries all are placed under the same board. The board seems to have acted with much conservatism and good sense in the management of these institutions. It issued for example soon after its appointment a general notice to the different institutions that the superintendents would be continued in office and that no changes would be made except for cause. It also announced that the board would as far as practicable leave the superintendents of institutions absolutely free to select their own subordinates and employes. This single act did much to secure the confidence of the public in the good faith of members of the board of control. The same action was taken by the board of control of Minnesota, which, in many respects was modeled upon that of Iowa. In Minnesota the mistake originally made in the organic law was in giving to the board of control a supervision over the finances of the University of Minnesota and of the State Normal Schools. The exercise of this power was resisted by the University and the Normal Schools until, after a time, legislation was had, which modified the duties and powers of the board of control and practically left to it solely the right to erect buildings, to place insurance and to supervise the general finances.

The Nebraska board of control is known as the "Board of Public Lands and Buildings" and is composed of the Land Com-

missioner, the Secretary of State, the State Treasurer and the Attorney General. This constitution of a board does not, of course, remove it from a suspicion of exercising political control, and there is little doubt that politics enters into the management of the institutions which it governs.

In Illinois the board of control, known as the "Board of Administration," is composed of five members, one or more of whom must be experts in several lines of work, for example, one is an expert alienist, another an expert in matters of charity and child saving, and a third in financial matters. The "Board of Administration" has control of nine institutions for the insane. The "Board of Administration" appoints all chief executive officers, but it does not interfere in any way with employes who are definitely under civil service rules. The "Board of Administration" also provides for the purchase of supplies and the payment of all bills. These bills are audited and paid from the State Treasury.

In the State of Washington the board is known as "The State Board of Audits and Control" and has charge of all the penal and charitable institutions of the State, including penitentiaries orphans' homes and institutions for the insane.

Other States, like Kansas, Nebraska, Kentucky and West Virginia, having boards of control might be mentioned. There is, however, little which is especially distinctive in these boards, all being much the same as those already described.

As a rule they are organized as non-partisan boards. Upon examination of the reports of many of these boards, one concludes that wherever such boards exist, they are popular and many arguments are presented in their favor. In Iowa, Minnesota and Wisconsin, and probably in other states, they have doubtless diminished the expenses of public institutions, due to the fact that little local purchase of supplies has been permitted. Under the old system a State institution was often regarded a local asset upon which the community had a preferred claim in matters of trade. Friends and relatives of trustees expected favors; supplies were bought from favored parties and not always inspected as carefully as they should have been. With the new arrangement supplies are furnished upon general contracts and estimates are made for them. In some states also the custody of the funds

of the institution was given to a local bank. Sometimes the treasurer was the president of the bank and felt it to be his duty to help his bank by keeping large sums on deposit. Under the new arrangement the State Treasurer is generally made treasurer of all State institutions supported by the State. All receipts in behalf of any institution are paid directly into the State Treasury and all bills are paid from it. This prevents the possibilty of a personal use of the funds and improves the credit of the institution.

In a recent report by Henry C. Wright on the "Fiscal Control of State Institutions," the question of the economy of such State boards of control has been carefully considered. His investigation seems to show that while contracts are better made than formerly under the old system of individual buying, a certain danger exists that the institutions will not inspect carefully all supplies and hence institutions may not get supplies equal in quality to the samples or supplies which are paid for by the State. The institution cannot enforce the contract and may not be in a position to reject an inferior article, because of pressing need of it.

In this matter considerable weight should be given to the testimony of the superintendents of institutions. In Minnesota and Iowa the statement is made that the effect of purchase through the state board of control has been to improve the quality of supplies.

In Minnesota also in a recent Conference of Charities the statement was made by a superintendent that the standard of care of patients had been much elevated by the State board of control; that superintendents of institutions were no longer compelled to be financial agents, purchasing agents and treasurers, but had ample time to devote to their professional work. If this be true it certainly is an important argument in favor of a board of control. In the same State it is stated that the board of control has been able to advance salaries of employes to an extent not at all possible under the old system. It can readily be seen that all these institutions can be managed much more uniformly by experienced men than by persons appointed without any special fitness for their places. It is to be noted, however, that in more than one board of control many changes have occurred, possibly sometimes as a reward for party service. However this may be,

missioner, the Secretary of State, the State Treasurer and the Attorney General. This constitution of a board does not, of course, remove it from a suspicion of exercising political control, and there is little doubt that politics enters into the management of the institutions which it governs.

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the crux of the whole situation consists in the character and competency of the members of the board.

The men who constitute the boards should be of the highest character and standing. They should be selected because of their fitness for the place and continue in office for long periods of time. High-minded men have increased opportunities for good service upon such boards. Men of low views of public duty can do equal harm.

THE TREATMENT OF MENTAL DISEASE IN THE EARLY STAGE.—The address of Dr. J. Montgomery Mosher, of Albany, one of the editors of the AMERICAN JOURNAL OF INSANITY, presented at the recent session of the Australasian Medical Congress in Sydney in September last, was referred to in our last issue. A copy of this address has since been published and distributed and deserves special mention as the last word which has been uttered in this country upon the treatment of the early stage of mental disease. The author states that a group of mental cases of an acute character exists, requiring early and appropriate treatment, for whom complete restoration to health can be reasonably expected. Their symptoms are characterized by delirium, stupor, excitement, depression or confusion. The special manifestation of the disease seems to be the individual response to a functional derangement of the nervous system. The pathological basis being exhaustion complicated with a toxic condition, the term "exhaustion psychoses" includes the whole group. The primary cause is worry, and the secondary effects are sleeplessness, disturbance of digestion and associated disorders of secretion and excretion. Elimination of waste products is imperfect and toxic substances are retained within the system. The trained physician sees physical as well as mental disorder, while the unskilled observer has his attention arrested by the mental manifestations solely. The development of disease may be gradual in some instances; in others it is sudden and attended by delirium and collapse. The patient may have strange and unexplained fancies; his bodily sensations may be perverted; external impressions may be wrongly interpreted; he hears accusing voices and the like. He is vaguely conscious of his condition and seeks the cause. He often is made apprehensive by the evasions or lack of frankness of his friends in their mistaken

efforts to soothe him and may become suspicious or violent. The author well says: "Frankness or honesty in intercourse essential at this point are usually avoided, though the simple explanation to him that his condition is one of associated mental and physical disease calling for appropriate medical treatment with the prospect of ultimate recovery is eagerly accepted. There is no more impressive fact in the symptomatology of incipient mental disease than this response by the patient to plain dealing. This simple psychological truth is in itself a protest against the practice of placing the patient under the jurisdiction of a court of law as preliminary to medical treatment."

The systematic treatment of such cases should be carried out in a hospital. The analogy between exhaustion psychoses and general medical and surgical diseases cannot be too strongly urged. Both are better treated in a hospital.

The principles sought to be carried out in treating such patients are physical and mental rest. Patients are placed in bed and are carefully nursed by trained nurses. If great prostration is present they receive water, broth and milk at hourly intervals and are constantly nursed. Hypnotic drugs are not used and the induction of sleep by narcotic drugs is avoided. The excretions are watched and everything is done to maintain the strength of the patient. In a few weeks the patient enters upon convalescence or upon the anticipatory state of hebetude which may follow if the patient has been excited. Tonics, liberal feeding, diversion and recreation are then provided. Many patients are discharged "improved" after a few weeks. It is not thought necessary or advisable to delay the discharge of the patient until complete restoration to health. The environment of the hospital is sometimes depressing and a change of scene often hastens the fading out of unpleasant recollections or morbid impressions. The experience at Albany shows that a general city hospital may successfully meet the want of a more general and more readily available provision for cases of incipient mental disease than is furnished by the usual state hospital for the insane. It is gratifying to observe that the new Henry Phipps Psychiatric Clinic in Baltimore and the new Psychopathic Hospital in Boston contemplate a similar work in connection with general hospitals.

SIXTY-EIGHTH ANNUAL MEETING OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—A preliminary program for the sixty-eighth annual meeting of the Association which will be held at the Marlborough-Blenheim, Atlantic City, N. J., May 28, 29, 30, 31, 1912, has been issued by the secretary, Dr. Charles G. Wagner, and is given below:

TUESDAY, MAY TWENTY-EIGHTH.

10 A. M.

Organization.

Address of Welcome.

Response.

Reports: Committee of Arrangements, Council, Treasurer, Editors of the AMERICAN JOURNAL OF INSANITY, Appointment of Nominating Committee.

Memorial Notices.

Address by the President, Hubert Work, M. D., Pueblo, Colo.

"Fatty Degeneration of the Nervous Elements of the Cortex in the Various Mental Diseases." Illustrated by lantern slides. Dr. Henry A. Cotton, Trenton, N. J.

"Exciting Causes in Psychiatry," Dr. A. J. Rosanoff, Kings Park, N. Y.

"Freud's Conception of Paranoia, with Report of a Case," Dr. Morris J. Karpas, New York, N. Y.

"Three-Quarters of a Century of Institutional Care of the Insane in the United States," Dr. Henry M. Hurd, Baltimore, Md.

"Conversion," Dr. Andrew Macphail, Montreal, Canada.

WEDNESDAY, MAY TWENTY-NINTH.

"Some Suggestions as to New Therapeutic Issues," Dr. William A. White, Washington, D. C.

"Some Psychological Observations in the Study of the Insane," Dr. Max E. Witte, Clarinda, Iowa.

"State Care of Boston Insane," Dr. Henry P. Frost, Dorchester Centre, Mass.

"Immigration as a Problem in the State Care of the Insane," Dr. James V. May, Albany, N. Y.

"Types of Violence in the Insane and Feeble-Minded, Contrasted," Dr. Charles E. Atwood, New York, N. Y., and Dr. L. Pierce Clark, New York, N. Y.

"The Conditions out of which Inebriety Grows," Dr. H. A. Tomlinson, St. Peter, Minn.

Paper promised, Dr. Richard Dewey, Wauwatosa, Wis.

Paper promised, Dr. W. M. English, Hamilton, Canada.

"Conscious Visual Hallucinations," Dr. Albert Warren Ferris, New York City.

"The Relation of Certain Psychoses to the Neuroses," Dr. Chester L. Carlisle, Kings Park, N. Y.

THURSDAY, MAY THIRTIETH.

Report of Committee on the Status of Medical and Scientific Work in the Hospitals of the United States and Provinces, Dr. Adolf Meyer, Baltimore, Md. (Chairman).

"Paranoia, Its Origin, Modifications, Different Meanings and Present Day Limitations," Dr. Smith Ely Jelliffe, New York, N. Y.

"The Insane and their Care in British Columbia," Dr. Charles E. Doherty, New Westminster, B. C.

Paper promised, Dr. W. P. Crumbacker, Independence, Iowa.

Symposium—"Diversional Occupation of the Insane," Dr. Arthur P. Herring, Baltimore, Md. In connection with this Symposium there will be an exhibit illustrating work done by patients, and papers by Dr. William Rush Dunton, Jr., of the Sheppard & Enoch Pratt Hospital, on "A Nurses' Occupation Course"; Dr. Robert P. Winterode, of the Maryland Hospital for Negro Insane, on "Some Experiences in a Temporary Construction Camp for Negro Insane"; and by Drs. La Moure, Haviland and others.

Paper promised, Dr. C. A. Porteous, Montreal, Canada.

Paper promised, Dr. Byron M. Caples, Waukesha, Wis.

"The Legitimate Use of Psychic Influences in the Treatment of the Sick," Dr. Henry C. Eyman, Massillon, O.

Paper promised, Dr. William E. Dodd, Astoria, L. I.

"Water," Dr. Charles G. Hill, Baltimore, Md.

"Social Service and the Insane," Dr. George O'Hanlon, New York, N. Y.

EVENING SESSION.

Annual Address, Hon. Herbert P. Bissell, Buffalo, N. Y., New York State Commissioner in Lunacy.

FRIDAY, MAY THIRTY-FIRST.

Report of Council on the Time and Place of next Meeting.
Unfinished Business.
Introduction of President-Elect.
Adjournment.

SIR THOMAS S. CLOUSTON.—The scientific attainments and personal merit of Dr. Thomas S. Clouston, for so many years the head of the Royal Morningside Asylum, Edinburgh, have been at last recognized by royalty and the distinction of Knighthood conferred upon him. Nothing can add to the position which Sir Thomas has attained in his profession as a teacher, author, editor and as the director of one of the best and best-known hospitals for mental maladies in Great Britain or to the place which he holds among those who are fortunate enough to be numbered among his friends.

Dr. Clouston, for we must continue so to call him, retired from the superintendency of the Royal Asylum at Morningside, Edinburgh, four years ago, after thirty-five years' service. He was editor of the *Journal of Mental Science*, the organ of the Medico-Psychological Association of Great Britain and Ireland, from 1873 to 1881 and president of the Association in 1888. He has written several books of which the best known is probably his Clinical Lectures on Mental Diseases, and has also been for several years a teacher of psychiatry in the University of Edinburgh. We congratulate Dr. Clouston upon this recognition of his work and worth, a recognition which had long ago been accorded him by his professional brethren, and wish for him many years of enjoyment in his retirement from those duties, the performance of which had shed such luster upon him and his profession.

Insanity and Criminal Responsibility.—Committee B of the American Institute of Criminal Law and Criminology has made a preliminary report upon this important topic which will be read with much interest. The report which was presented at the third annual meeting of the Institute in Boston in September last was in response to the following direction: "An investigation of the insane offender, with a view, first, to ascertain how the existing legal rules of criminal responsibility can be adjusted to the conclusions of modern medical science and modern penal science, and, secondly, to devise such amendments in the mode of legal proceedings as will best realize these principles and avoid current abuses."

The members of the committee are: Edwin R. Keedy, professor of law in Northwestern University, Chicago, chairman; Dr. Adolf Meyer, Baltimore; Dr. Harold N. Moyer, Chicago; Dr. William H. White, Washington; William E. Mickell, professor of law in the University of Pennsylvania, Philadelphia; Albert C. Barnes, late judge of the Superior Court, Chicago; Walter Wheeler Cook, professor of law in the University of Chicago, and Dr. Archibald Church, Chicago.

The committee has found the questions involved in the pursuit of the investigation very difficult of solution and does not in the preliminary report attempt much more than an enumeration of some of the conflicting views with a few tentative recommendations.

The committee says:

The inherent difficulties of the problem of determining the proper relation between insanity and criminal responsibility, coupled with the fact that some physicians are venal and some lawyers are corrupt, will explain many of the grounds of dissatisfaction stated at the beginning.

Definitions of Criminal Responsibility and Insanity.—It is necessary to consider at this point what criminal responsibility is and how this is affected by insanity. Criminal responsibility means accountability for one's actions to the criminal law. The tests of criminal responsibility are the rules of law which determine the guilt (upon which the punishment is based) of those who cause certain injuries, carefully defined by the law, to individuals or society in general. Criminal responsibility is then a purely legal question to be determined by the tests and machinery of the law.

As criminal responsibility is a purely legal question, so insanity is a medical one which must be answered by the physician. He should decide whether an individual is suffering from a mental disorder and if so determine its character and its symptoms, just as he is the only one who can properly diagnose a case of physical ill-health. This being so, the physician's idea of insanity should be accepted, and according to him the term "insanity" is vague and misleading. The popular idea is that insanity is a definite, clearly defined state with a sharp line of cleavage separating it from a state of sanity. To the physician, insanity means nothing but mental derangement, as general a term as physical unsoundness. Just as there is a gradual, almost imperceptible shading between physical health and sickness, so there is between mental health and mental derangement. The physician differentiates between many kinds of mental diseases, each with its more or less characteristic symptoms.

The problem is to connect the physician's diagnosis of the mental condition of a particular individual with the legal tests of criminal responsibility.

Relation of Insanity to Criminal Responsibility.—According to the English common law, a crime consists of a criminal act done with a criminal intent. This criminal intent is defined by the law and varies with the particular crime. In other words, a particular state of mind must accompany and give rise to a particular act in order to constitute a particular crime. It is true that there has developed a class of misdemeanors largely statutory, which require no criminal intent. These misdemeanors may be grouped as public torts and prohibitions under the police power and do not present any difficulty in the present problem, as no case has been found where insanity has been set up as a defense to such a misdemeanor and no such case is likely to arise. There are also a few decisions to the effect that there may be a conviction for bigamy in the absence of any criminal intent, but these decisions have been criticized and there are cases *contra*. For all purposes, so far as the question of insanity is concerned, it may be taken as a hypothesis that every crime requires a criminal intent and that any fact which negatives the necessary intent in a good defense. It follows that when the defendant's mental derangement is set up as a defense to a charge of crime the

question is not whether the defendant is insane, but whether, by reason of the particular mental disease from which he was suffering, he lacked the intent necessary to the crime with which he is charged. It is not the fact of insanity, but the symptoms thereof that are important in determining the question of criminal responsibility. The problem is no different, when insanity is set up as a defense, from what it is when it is claimed that some other fact negatives the criminal intent. The question is the same when the defense is physical ill-health. It means nothing to say that a man who killed another was physically sick at the time. Nor does it help to say that he had typhoid fever. But, if it can be shown that he was delirious by reason of the fever and that the act committed was produced by this delirium, then there is a good defense.

It further declares that the unsatisfactory character of much expert testimony as to insanity is believed to be due to the following causes: (1) The fact that some medical experts are incompetent and venal; (2) that some trial lawyers are corruptly partisan and that others have an insufficient knowledge of the subject and their examination of an expert witness is dependent upon questions furnished by the witness; (3) that there is often a failure on the part of judge, counsel and expert to appreciate the relation which insanity bears to criminal responsibility. To this test the committee says some would add the hypothetical question, but that it has nothing to report on that point hoping to take it up during the coming year.

Reference is made to the report of the American Neurological Association on Expert Testimony made in May, 1911, but no reference is found to the much more extensive report of the committee of American Medico-Psychological Association made in 1910 on the same subject—upon which, indeed, as we have had occasion heretofore to remark, the report of the Neurological Association appears to have been largely based.

We consider it a distinct advance that the committee has placed its ban upon the old test based upon the prisoner's supposed knowledge of the right or wrong of his act, a test still brought forward by many judges in their charges to juries and by many prosecuting attorneys in their arguments.

The committee makes the following recommendations:

(1) That the legal tests of insanity for determining criminal responsibility be abolished.

(2) That insanity should be held to be a good defense, whenever it negatives the necessary criminal intent.

(3) That the various medical associations shall establish and maintain a code of professional ethics to govern medical experts.

(4) That the various bar associations shall establish and maintain a code of professional ethics to govern counsel in criminal trials, where the defense of insanity is raised.

(5) That medical witnesses who give opinion evidence in criminal cases, where the defense is insanity, shall be chosen from a qualified group.

(6) That the respective functions of medical expert, judge and jury shall be as set forth in this report.

(7) That the statute proposed by the committee be enacted into law by the legislatures of the various states.

The foregoing recommendations are put forward as tentative only, and it is hoped that they will be freely discussed and criticized.

The functions of expert, judge and jury are set forth by the committee as follows:

The medical expert, if he has examined the defendant, should state the results of his examination and describe the symptoms of the disease; and should then state his opinion regarding the effect of such symptoms upon the powers of understanding and volition. If the expert has made no examination, his testimony must be confined to a statement of opinion based upon the testimony of other witnesses. The judge should explain to the jury what state of mind the law requires in the particular case, giving concrete examples, and describing situations of fact, some of which indicate the presence, others, the absence of such state of mind. The jury should then determine whether the expert's description of the defendant's state of mind coincides with that defined and illustrated by the judge.

The statute recommended is:

(1) Where in any indictment or information any act or omission is charged against any person as an offense, and it is given in evidence on the trial of such person for that offense that he was insane so as not to be responsible according to law for his actions, at the time when the act was done or omission made, then if it appears to the jury before whom such person is tried, that he did the act or made the omission charged, but by reason of his insanity was not responsible according to law, the jury shall return a special verdict that the accused committed the act or made the omission charged against him, but was not responsible according to law, by reason of his insanity, at the time when he did the act or made the omission.

(2) When such special verdict is found, the court shall remand the prisoner to the custody of the proper officer and shall immediately order an inquisition by the proper persons to determine whether the prisoner is now insane so as to be a menace to the public health or safety. If the persons who conduct the inquisition so find, then the judge shall order that such insane person be committed to the state hospital for the insane, to be confined there until in the opinion of the proper authorities he has recovered his sanity and may be safely dismissed from the said hospital. If the members

of the inquisition find that the prisoner is not insane as aforesaid, then he shall be discharged from custody.

(2) That when an insane person shall have been committed to the state hospital for the insane in accordance with the provisions of the preceding section, no judge of competent jurisdiction shall issue a writ of habeas corpus for the release of such person on the grounds that he is no longer insane, unless the petitioner for such writ presents sufficient evidence to establish a *prima facie* case of sanity on the part of the person confined as aforesaid. Or,

(3) That when an insane person shall have been committed to the state hospital for the insane in accordance with the provisions of the preceding section and a writ of habeas corpus has issued for the release of such person, upon the hearing of which writ such person has not been released from confinement, then no judge of competent jurisdiction shall issue a writ of habeas corpus for the release of such person on the ground that he is no longer insane, unless the petitioner for such writ presents to the judge as aforesaid evidence sufficient to show that the mental condition of the person confined has improved since the hearing upon the first writ, so as to render it probable that he is sufficiently sane to justify his release from the asylum.

It is quite possible that some of our readers may have views upon questions discussed in this report which they may wish to communicate to the chairman, Professor Edwin R. Keedy, 31 West Lake Street, Chicago, Ill.

Book Reviews.

Heredity in Relation to Eugenics. By CHARLES BENEDICT DAVENPORT. (New York: Henry Holt & Co., 1911.)

In the study of any mental or physical trait or of any act of conduct, with reference to origin or causation, there are three factors to be taken into account: Inherited character or tendency, cultural conditions—nutrition, educational influences—and immediate or exciting causes. The book which is before us is devoted to a consideration of the first factor.

In the preface the author refers to the fact that the eugenic teachings are not new and states that "modern medicine is responsible for the loss of appreciation of the power of heredity." Yet he would, perhaps, concede that the strength of the regained appreciation of that power is derived not from old teachings but from a recent scientific development to which not only biologists but also physicians have contributed, as is so amply shown in the bibliography at the end of the book; and he would, perhaps, further concede that any lack of appreciation in the past has been due to the immature state of this scientific development.

The book gives in proper and entertaining style a presentation of the problems of eugenics in all their bearings. Beginning with a general statement of the nature and aims of eugenics, the author goes on to explain the principle of unit characters and of their independent transmission by heredity, and then to show the correlation of this principle with the facts of cell structure, fertilization, and cell division. Then follows an exposition of the Mendelian theory, definition of duplex, simplex, and nulliplex inheritance, of dominant and recessive characters, and a brief discussion of the inheritance of multiple characters and of sex-limited characters. The theoretical part of the book is concluded with remarks on the application of the laws of heredity to eugenics.

Chapter III, which takes up more than half of the book, is a comprehensive resumé of the facts pertaining to the transmission of various characters, physical and mental, desirable and undesirable, "normal" and "abnormal." Many characters are discussed whose manner of transmission by heredity is fairly well established: eye color, hair color, hair form, skin color, feeble-mindedness, epilepsy, insanity, Huntington's chorea, cataract, retinitis, sigmentosa, deaf-mutism, hæmophilia, diabetes insipidus, hypospadias, polydactylism, syndactylism, brachydactylism. Other characters are discussed whose manner of transmission is not entirely clear: stature, body weight, musical ability, memory, temperament, handwriting, general bodily energy, pauperism, narcotism, criminality, etc. One might well question if these are unit characters. In these connections, however,

"the suggestions made are by no means final but are made to illustrate the general method and give the most probable conclusions."

From two pedigrees, reproduced on page 122, it would seem that myopia is transmitted as a sex-limited character, being manifest only in males and transmissable either by affected males or by unaffected females belonging to affected strains. Physicians of any experience in opthalmology know that this is not so, for myopia of various degrees is common among women; the present reviewer, though not an ophthalmologist, can think offhand of four women amongst his acquaintances who are markedly myopic and who have to wear glasses all the time.

In Chapter IV the author discusses the geographical distribution of inheritable traits, consanguinity, and barriers to marriage selection. He points out that barriers of any kind to free and wide marriage selection favor consanguineous marriages and are, therefore, un-eugenic influences. There are physiographic barriers: stretches of water, as affecting islands and peninsulas, mountain chains, as affecting valleys; and social barriers: clan, social status, language, race, and religion. The chapter is pregnant with meaning for scientific sociology.

Migrations and their eugenic significance are the subject of Chapter V. Primitive race migrations in Europe are first referred to. Then early immigration to America is taken up with special reference to types of settlers as determining subsequent developments in the different parts of the country.

The first settlers on the James River consisted chiefly of "discredited idlers and would-be adventurers," and later of colonists sent by the London Company, among whom were even felons, murderers, and women of the streets; many of their descendants found the retreats of the mountain valleys toward Kentucky and Tennessee to their liking and later spread into Indiana and Illinois; to them much degeneracy is to be traced, among others probably the great family of Ishmaelites who have in hundreds peopled the almshouses and jails of Indiana.

To the qualities of the Dutch traders who settled on Manhattan Island, together with the favorable environment and admirable location is attributed the creation of the commercial centre of the western world. And to those in the colonies of New England of "idealists, men who were willing to undergo exile for conscience' sake . . . men of deep convictions and scholarship" is attributed the leadership of those states not only in literature, philosophy, and science, but also in the spread of education across the land. "Nor is it an accident that on the soil tilled by these dissenters from the Established Church of England should be spilled the first blood of the American Revolution."

Brief reference is then made to migrations of the better elements of the population from rural to urban districts with the resulting excess of proportion of the indolent, alcoholic, feeble-minded, and ne'er-do-weel among those that remain behind.

The remainder of the chapter is devoted to the important problem of modern immigration. At first, it would seem, the author loses the logical

thread of connection between the principles of heredity and the problem under consideration. While elsewhere he emphasizes the importance of traits, here he classifies immigrants by races; again, while recognizing elsewhere that any race is a vast and complicated mosaic of innumerable traits, desirable and undesirable, here he characterizes races in terms of generalizations and on the basis of such generalizations even ventures to express or imply opinions as to the desirability or undesirability of various races as contributing to immigration. It does not take him long, however, to return to the method which is his own at its very best, and in the last section of the chapter, in which the practical issue of the control of immigration is dealt with, he comes to the following conclusion: "The fact is that no race *per se*, whether Slovak, Ruthenian, Turk or Chinese, is dangerous and none undesirable; but only those individuals whose somatic traits or germinal determiners are, from the standpoint of our social life, bad . . . The proper way to classify immigrants for admission or rejection is on the basis of the probable performance of their germ plasm."

Chapter VI, entitled "The Influence of the Individual on the Race," takes up the striking instance of Elizabeth Tuttle and her descendants among whom have been so many of America's great educators, students, and moral leaders of the Republic as to lead the author to remark: "Had Elizabeth Tuttle not been, this nation would not occupy the position in culture and learning that it now does." In a similar way are taken up, on the one hand, the first families of Virginia and the Kentucky aristocracy, and on the other hand, the "Jukes" and the Ishmaelites.

Chapter VIII is entitled "Eugenics and Euthenics." Those who have followed the development of the eugenics movement will readily understand why part of this chapter was written. Whenever a paper is published or read on heredity in its relation to any phenomenon or to any human problem, somebody appears who finds it necessary to emphasize the importance of environment and possibly to imply that the author has neglected its consideration. It would seem that the implication of such neglect could no longer be made against the author of the book under review; for he takes the pains to point out, in the first place, that heredity and environment do not exclude each other, but that there is, on the contrary, an interaction between the two, and that any phase of conduct is but "the reaction of a specific sort of protoplasm to a specific stimulus"; and in the second place, that in different connections the importance of the one or the other may be greater, illustrating by extremes—"Albinism is a protoplasmic 'accident' as independent of environment as drowning by the overturning of an ocean steamship is independent of heredity."

The elimination of undesirable traits is then discussed as a practical question of eugenics. Sterilization and its legality are considered, laws regulating marriage, and segregation of defectives. The last measure is favored, yet the great plea of the author is for further investigation and thus establishing a scientific basis for wise action, and certainly not for hasty, radical legislation. The chapter closes with an interesting discussion of freedom of the will and responsibility; the conclusion need

hardly be stated, as it so inevitably follows from the principles previously laid down. There *is* a responsibility, namely, that of society. "That responsibility involves, first, preventing the mating that brings together the anti-social traits of the criminal; second, after this damage is done, in securing the highest development of the good traits and the inhibition of the bad, surrounding the weak protoplasm with the best stimuli and protecting it from harmful stimuli."

The last chapter deals with the organization of applied eugenics. The necessity is here shown of locating, on the one hand, traits of especial value, and on the other hand, anti-social traits, "feeble-mindedness, epilepsy, delusions, melancholia, mental deterioration, craving for narcotics, lack of moral sense and self-control, tendency to wander, to steal, to assault, and to commit wanton cruelties upon children and animals," also tendencies toward various diseases.

A state eugenic survey should be taken in which "the 630,000 teachers of state and city schools might be used to secure the census of 24,000,000 children of 'school age' and their parents."

The need is further pointed out for an interstate clearing house for heredity data on a plan similar to that of the Volta Bureau for deaf-mutism at Washington, founded by Dr. Alexander Graham Bell; in that bureau can be found the names of over twenty thousand deaf and the particulars respecting their history.

Finally mention is made of such a clearing house for all inheritable traits, The Eugenics Record Office, at Cold Spring Harbor, Long Island, N. Y., which was established in 1910 in connection with the Eugenics Section of the American Breeders Association. This office collects pedigree records, makes studies of heredity, publishes such studies, seeks to co-operate with institutions and state boards of control. "In a word it is devoted to the advancement of the science and practice of eugenics."

The subject of the book, it may be truly said, is of far greater importance to the human race than any other subject whatever. It is treated in a scientific yet popular manner. Practical suggestions, wise and conservative, are offered. Whoever has at heart the welfare of the human race, especially whoever by virtue of office, or wealth, or authority may be deemed to bear more than ordinary responsibility for such welfare, should read this book—as a duty which he will find also a pleasure. To those who with the author of this book may aid in the betterment of the race shall be due from the world a debt of inestimable gratitude.

A. J. R.

L'Aphasie dans ses Rapports avec la Démence et les Vésanies. Par le Dr. Maurice Brissot. (Paris: G. Steinheil, 1910.)

In this work the author has studied the question of the relation of aphasia to dementia leaving aside the anatomical viewpoint. The first part of the work is given over to the mental state of asphasics such as one encounters daily in the hospital service, that is to say to patients with whom the language difficulties are not contemporaneous with the delirious

or dementing manifestations. The author recalls the doctrine of Pierre Marie who says that every aphasic is a being with enfeebled intelligence and that this enfeeblement of the mental faculties has nothing in common with the dementing processes: aphasia is not dementia. The author discusses this view and proposes the following:

(1) If certain patients are without doubt psychically enfeebled many others preserve the integrity of the intellectual functions.

(2) Besides these normal individuals or those suffering from a mental decay there exist true dements (organic dements with focal lesions).

(3) The patient with a focal lesion of the centers of language is only a patient with a wounded brain but not one intellectually enfeebled. The diffuse superadded changes can explain the appearance of the dementia.

Noting the mental decay which can supervene in these patients the author considering chiefly, in the second part, the insane aphasics with whom the language difficulties are manifested in the course of certain dementing or delirious conditions (senile dementia, general paralysis).

The chapter concerning the relation of aphasia to senile dementia is particularly interesting, for it shows us that not only can aphasia supervene as a complication in the course of a senile dementia, but that very frequently one sees a sensory aphasia consisting in word blindness with paraphasia simulating in the aged, a state of dementia, often very marked. He also notes the different psychopathies in which one can frequently find a condition simulating an organic aphasia. Among these states he notes the onomatomania, tics (coprolalia, echolalia), the hallucinatory deliria with mystical tendencies, the different mutisms (dementing, hysterical, insane), dementia præcox (stereotypies of words), mental confusion, acute mania, chronic mania.

The third part of the work is given over to the study of the relations which exist between the aphasia and pseudo-bulbar paralysis on the one side and aphasia, agnosia and apraxia on the other side, these troubles being clinically comparable and frequently associated in the same individual.

Finally the author gives the medico-legal considerations which are of considerable interest, especially those concerning the civil capacity and criminal responsibility of aphasics.

At the beginning of the work there is a chapter on the history of doctrines of aphasia as well as on the general psychophysiology of language, in which the author criticises the nominalistic theories and defends the conceptionalistic doctrines. This work, which is rather a critical review of aphasia, is illustrated with the abstracts of sixty cases, several illustrations and a very good French bibliography of the subject.

RICKSHER.

The First Principles of Heredity. By S. HERBERT, M. D. (New York: The MacMillan Company, 1910.)

The purpose of this book is, in the words of its author, "to supply in a simple and yet scientific manner all that may be desirable for the average intelligence to know about heredity and related questions, without at the

same time assuming any previous knowledge of the subject on the reader's part."

It would be hard to agree with the author on the point that "all that may be desirable," etc., is supplied by the book; it might, on the contrary, be maintained that more would surely not be undesirable, though it may be admitted that the book is an excellent introduction to the study of heredity. It will familiarize the reader with the various biological mechanisms of reproduction and with the more important theories of heredity, namely, those of Spencer, Darwin, Galton and Weismann. The present status of such questions as telegony, maternal impressions, determination of sex, and transmission of acquired characters is discussed.

In the chapter on the inheritance of disease theoretical matters are treated; the distinction between congenital and inherited diseases, inhritance of mere predisposition or of immunity, etc.; only the briefest reference is made to the inheritance of special diseases: color-blindness and hæmophilia.

Then follow two chapters, very readable, devoted respectively to mendelism and biometrics. The author does not assume a partisan attitude as regards the two schools of heredity, but discusses the laws of segregation of characters and of ancestral inheritance impartially and expresses the view that the two are not inconsistent and that a reconciliation may, in the near future, not be impossible. At any rate in their bearing upon eugenics the two laws of heredity lead to the same conclusions, as the author shows by the following quotations from prominent representatives of the two schools:

"Education is to man what manure is to the pea. The educated are in themselves the better for it, but their experience will alter not one jot the irrevocable nature of their offspring. Permanent progress is a question of breeding rather than of pedagogics; a matter of gametes, not of training. As our knowledge of heredity clears and the mists of superstition are dispelled, there grows upon us with ever increasing and relentless force the conviction that the creature is not made but born." (Prinnett.)

"Looked at from the social standpoint, we see how exceptional families, by careful marriages, can even within a few generations obtain an exceptional stock, and how directly this suggests assortive mating as a moral duty for the highly endowed. On the other hand the exceptionally degenerate, isolated in the slums of our modern cities, can easily produce permanent stock also—a stock which no change of environment will permanently elevate, and which nothing but mixture with better blood will improve. But this is an improvement of the bad by a social waste of the better. We do not want to eliminate the bad stock by watering it with good, but by placing it under conditions where it is relatively or absolutely infertile." (Pearson.)

A short bibliography is given at the end of the book, also a glossary and an index. The book can be recommended as a clear and compact exposition of the modern systematizations of the facts of reproduction and heredity. A full presentation of the facts themselves is not within its scope.

A. J. R.

The Care of the Insane and Hospital Management. By CHARLES WHITNEY PAGE, M. D., Asst. Phys. Hartford Retreat, 1871-1888; Supt. Conn. Hospital for the Insane, 1898-1901; Supt. Danvers State Hospital, Mass., 1888-1898 and 1903-1910; Member of The American Medico-Psychological Association, The Boston Society of Psychiatry and Neurology, The New England Psychiatric Society and The Mass. Medical Society. (Boston: W. M. Leonard, 1912.)

The long experience of the author, as shown by the above record of nearly forty years of active participation in the practical care of the insane and the management of large institutions, enables him to speak with authority upon the topics carefully and thoroughly discussed in the work before us.

The central thought of the book is the care of the insane by "non-restraint methods," and not simply by the method of non-restraint. Even at this late day it is to be feared that many persons do not yet know what the term means. It is surely, as the author points out, not to cast away mechanical restraint merely, but to substitute other means of treatment which must be instituted to make non-restraint effective. The author well says:

"While a few prominent hospital superintendents have, since Conolly's day, openly condemned his methods, scoffed at his claims or questioned his judgment, doubtless a majority of those responsible for the management of the insane have regarded his ideas as extreme, and many have viewed absolute 'non-restraint' as impracticable. In explanation of this opposition and indifference, it may be considered probable that those who have been antagonistic to the system of 'non-restraint' failed to apprehend Conolly's viewpoint. Doubtless many hospital officials acting upon a superficial conception of Conolly's practice have regarded the elimination of mechanical appliances, strait-jackets, wristlets, bed harnesses, etc., as the object sought; whereas, he used the term 'non-restraint' to characterize a comprehensive non-coercive method of dealing with the insane. He had in mind a broad, complete system of hospital management so saturated with the spirit of 'non-restraint,' so actuated by kindness, patience, consideration and tact, that the insane would not be provoked into acts of physical resistance; consequently situations or conditions suggesting the necessity for restraint would seldom arise. Those who have understood his theories and his practice so imperfectly as to suppose that they accomplished the ends he aimed at when they avoided the application of mechanical devices through severe discipline, harsh, intimidating treatment of excitable and obstinate patients, or by the use of chemical agents, have naturally enough failed to discover any value or merit in 'non-restraint.' Other worthy hospital administrators have no doubt been so engrossed in the study of scientific questions pertaining to mental disease and pathology that they have simply failed to give sufficient attention to the humane, social and moral elements which are fundamental considerations of the true 'non-restraint' motive. Did the successful adoption of the 'non-

restraint' principle in hospitals for the insane depend simply upon official edicts forbidding the employment of old-time mechanical instruments of restraint, unquestionably hospital authorities would universally prefer the more humane form of treatment."

Seldom in the reviewer's reading has the question been so clearly and forcibly presented. The requisites for the success of the movement are, in the words of Conolly, "a well-constituted governing body animated by philanthropy and directed by intelligence" and "proper officers"—that is, an executive force of assistants and nurses responsive to the highest hospital ideals.

In the author's opinion the governing board should not be too small, lest a single dominating personality may control it; nor should the time and energies of a governing board be engrossed by the care of too many institutions. This points to the wisdom of a governing board or board of trustees residing in the vicinity of the institution, selected for business experience and good standing in the community and possessing the confidence of the public. He also indicates that one of the chief functions of such a board should be the selection of a competent chief executive officer.

The board should not attempt executive functions except in emergencies. It should, however, be in full sympathy with the objects and purposes of the institution. The chief executive officer should be clothed with semi-autocratic powers and should be trusted and upheld as long as he proves himself to be fitted for the work which has been confided to him. The board of trustees should visit the hospital freely and should co-operate with the management in every possible way.

In reference to the appointment of the chief executive officer or superintendent, the author well says:

"Should the candidate possess acknowledged, even conspicuous, ability in any particular field, medical, commercial or sociological, such pre-eminence does not signify that he possesses the ability to organize hospital work successfully and maintain proper discipline. It is a much safer policy to fill the position, with its various lines of duty, by appointing an evenly balanced, 'all-round' man, who in addition to the requisite medical knowledge and business capability is blessed with abundant common sense, quick perception, a ready judgment and a passion for justice; for not only must a superintendent see that the patients receive the best medical care, that hospital funds are prudently handled, that employees conduct themselves properly, but in him should reside these finer qualities of mind and heart—patience, sympathy, courage, enthusiasm, etc.—since such attributes of higher manhood must characterize his administration in order that his life and official influence may tone and energize the interrelations of the whole hospital community."

The author also recognizes the wisdom of promoting assistant medical officers to fill such positions, whenever practicable, as better calculated to continue the policy of a successful institution than to appoint a man who has had little or no previous experience in psychiatry. He believes that all hospital workers, even the steward, should be subordinate to the superintendent.

His remarks upon the relation of the superintendent to the patients under his care are very timely:

"In managing patients some show of discipline must be observed, but rigid and severe measures should never be adopted, except as a last resort, after mild methods have been found unavailing. Under all circumstances, mildness, consideration and mercy should characterize the enforcement of discipline with insane patients. It should be remembered that if they were legally responsible they would be elsewhere. If such persons retain moral responsibility of any degree, it is wise to cultivate what exists rather than submerge it in feelings of bitter resentment. The superintendent's relations with his patients include that of *in loco parentis*. His established reputation for high ideals of manliness and justice is the only guarantee which the public can depend upon that the inmates of hospitals for the insane will be kindly and properly treated. They are in his keeping. They class legally as children, and it is his solemn duty to protect them in those privileges and rights which the state especially bestows through their commitment to his care. Thus are their legal rights established, and all should recognize that their moral rights are vastly increased because of their helplessness and the legal restrictions to which they are subjected. As regards personal conduct in hospitals for the insane, the superintendent is lawgiver, judge, jury and sheriff. But, above all, he should be the guardian of, and advocate for the patients. Let justice requite the faults of the patients as well as those of the employees; but, in the case of the patients, let it not be a blindfolded dispenser of law, such as is suggested by the conventional, emblematic statue of Justice, but rather a clear, open-eyed apostle of recompense, who, through humane, compassionate sentiments, recognizes that their calamitous mental condition totally changes the nature and degree of individual responsibility in the case of the insane.

"Unless a superintendent's attitude towards his patients is inspired by a warm heart, and unless his interest in their condition and needs is tinctured with spontaneous sympathy, his power for good in his own institution will be seriously restricted. But his sympathies must be of the rational, intelligent order that color and soften his judgments and commands; not the blind, hysterical sort that will sacrifice an ultimate good for temporary emotional satisfaction. Occasions will arise, no doubt, when the sympathetic inclination must be overruled, but usually it will suggest the better policy, produce most comfort and the best results. In state hospitals there will always be a large class of inmates who will require little, if any, medical treatment, but whose mental distress and sense of loneliness can be largely effaced through the agency of sympathetic moral treatment. And such treatment must be adopted and persistently practiced by those who endeavor to avoid the employment of mechanical restraint."

Courageous action may sometimes be needed, as he points out in the following examples:

"Within comparative recent years a male patient was released from an isolation-room in a New England Hospital after he had been kept in

seclusion about thirty years because of his hostile demonstrations and repeated acts of ferocity. Prior to his attack of mental disease he was a prominent lawyer, and he firmly believed his confinement was illegal. In the presence of hospital officials, attendants and visitors he always protested against the fancied injustice of being kept with the insane. By way of expressing his vehement objections to hospital imprisonment, he spent hours daily kicking the heavy oaken door which prevented his egress. So long-continued and so vigorous had been this habit that considerable deformity of both feet had resulted. Finally a resolute assistant physician terminated the isolation of this long-feared maniac and he was permitted to mingle freely with other patients in the general ward and upon the hospital lawn. He injured no one, and within two months could have been seen engaged in ball-playing with other patients on the grounds.

"At a still more recent date and in another New England hospital a young medical officer, who possessed the courage to act upon his convictions, removed from the wrists of a patient manacles which had been worn for many years, because the other hospital officials had misjudged the patient's mental attitude and magnified his capacity for vicious conduct. The irons had been worn so long that rust prevented their removal by the use of a key, and the arts of the blacksmith were required to unshackle the man. During his subsequent hospital history this patient gave no trouble whatever."

The superintendent should be of a sanguine temperament, and a confirmed optimist with an enthusiasm which is able to stimulate all associated with him to equally enthusiastic effort. He should also, as the author well points out, have the courage and good sense to resign his position before advancing years may impair his executive ability, or dim his ardor. He does not mention the logical conclusion that a proper pension allowance should permit him to reach such a decision without fear of pinching poverty in his declining years.

The chapters on assistant medical officers and their training, staff meetings and vacations are most interesting. It is gratifying to notice his advocacy of the wisdom of permitting assistants to marry so that institutions may profit by the continuous service of good men, who ought not to be compelled to choose celibacy as well as psychiatry.

His observations upon the training of nurses for the care of the insane are most timely. He says:

"To insure the proper treatment of the insane in large hospitals, the individual members of the nursing staff should have their ideas trained to understand the propriety and the importance of controlling patients by gentle, persuasive measures. Their sympathies for the patient should be awakened and cultivated. They should be inducted into the practice of leading patients by suggestion, deliberation, conscious mental power and the advantages of position. *They should take professional pride in winning mental victories over the turbulent insane* and deplore the subjugation of confused and terrified insane men and women by using brute force and strait-jackets."

Non-restraint methods in his opinion often require "plenty of room" in an institution, suitable employment, the payment of small wages to certain patients, special diet, extra clothing, more nurses, congregate dining rooms and greater liberty for patients.

He says very forcibly, when discussing the need of the absolute prohibition of the use of restraining apparatus:

"It is this conscious command of effectual physical power held in reserve that destroys the making of a good nurse in hospitals when straps and strait-jackets are allowed. When a nurse is certain that a patient can be humiliated or rendered helpless at her pleasure, by the application of ties, straps or canvas jackets, she will not long tolerate unkind and abusive words from the patient. She will not tax her strength and mental power in attempts to calm the patient's excitement with soothing words. She will not sufficiently exert herself to divert the patient's attention. Neither will she bestow upon the confused or distressed patient genuine sympathy, the indulgence and cultivation of which serve important functions in improving the character of the nurse, while it is often effectual in awakening the better sense of the patient. When employees make frequent use of strait-jackets on patients that are noisy, destructive to clothing, or violent, they sacrifice their finer sensibilities, their normal compassion for pain and mental torture is rapidly blunted, while their acquired indifference to the humiliation and punishment they inflict upon irresponsible, helpless human beings brutalizes their nature and perverts their character. Ex-employees have been known to boast of their cruel, fiendish treatment of weak but noisy insane patients, twenty-five years after they left the hospital service. Mechanical restraint of the insane is so antagonistic to the spirit or principle which must pervade all rational schemes for controlling the insane that it should be totally abolished, or teaching 'non-restraint' methods to nurses will avail little. The possibility of restraint lodged in the mind of the nurse smothers serious efforts to influence the patient by the charm of pity and the power of the intellect."

Where so much is worthy to be quoted, it is difficult to refrain from giving many more extracts from this thoughtful work.

Enough, however, has been given to show its value to all who have to do with the insane as trustees, medical officers, or nurses. It is an illuminating and inspiring book and deserves wide circulation and careful reading.

H. M. H.

Twelfth Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts for the Year Ending November 30, 1910. (Boston: Wright & Potter Printing Co., 1911.)

This report is quite up to the high standard set many years ago. It contains much that is of interest to those interested in the care of the insane outside of Massachusetts, as it treats quite fully of matters administrative, scientific, sociological, etc. After giving a brief statement of the

duties of the board, the various reforms and improvements which it has carried out since its organization are detailed, and then follows a statement of its plans for the future. All of which is chiefly of an historical character.

The report of the pathologist, Dr. Southard, is of considerable scientific interest. The work then in progress in the various institutions is mentioned and much of this has already been reported in this JOURNAL or elsewhere. Other work of investigation is still in progress and it is evident that the scientific work of the Massachusetts state hospitals is carried on in a manner which makes this state a shining example to most others. Evidently the fact that all of this is under the charge of Dr. Southard has much to do with its excellence.

Training schools for nurses are then discussed and many recommendations are made. One of these is provision for married attendants. It is considered doubtful if a course of training for men could be made obligatory, yet a systematized course of instruction is recommended even though no examination or standard of acquirement other than practical efficiency be insisted upon.

Occupation and diversion is discussed. The desirability of occupying those patients who are incapable of routine work is admitted and a special organization for the direction of such is recommended.

The remainder of the report is given over to matters chiefly of administrative interest. The usual conferences of trustees and superintendents have been held and conferences of the hospital stewards have also proved of service.

Mechanically the book is up to its usual excellence. W. R. D.

Obituary.

GEORGE FREDERICK JELLY, M. D.

Dr. Jelly, for more than thirty years a leading expert in mental diseases in Boston, died in Wakefield, October 24, 1911. His health had been failing for several years, but up to within a few months, he continued in the active practice of his profession.

Dr. Jelly was born in Salem, Mass., January 22, 1842. He was educated in the public schools of Salem, and graduated from Brown University in 1864, receiving the A. B. and A. M. degrees. In 1895 he received the degree of D. Sc. from the same university. He graduated from the Harvard Medical School in 1867, and from the City Hospital in 1868. He then began general practice in Springfield. In 1869, he was appointed second assistant physician at the McLean Hospital, and one year later superintendent.

After remaining at the McLean Hospital ten years, Dr. Jelly began the practice of his specialty in Boston. On coming to Boston he was appointed examiner of the insane for the city, a position he continued to fill until January, 1911.

When the State Board of Insanity was organized in 1898, and search made for a chairman, Dr. Jelly was generally recognized as the best man that could be found, and received the appointment. In his many years of service, he amply justified the expectations of his friends.

He was a diligent worker in the cause of the insane, State care of the insane, better methods of hospital organization, more liberal lunacy laws, psychopathic hospitals; to these and many other matters, he gave much time and thought.

Dr. Jelly's services were extensively sought as a consultant and an expert in court. For years he acted in the latter capacity in most of the important cases, not only in Massachusetts, but other States. He was thorough and deliberate in forming opinions, and absolutely honest and fearless in his expression of

them, and while often subjected in court to grilling cross-examinations, was true to his convictions. Though fearless, he was frank and humble, and even on the witness stand, spoke his mind freely, without regard to what the effect might be on himself.

As a result he gradually acquired the reputation of a man without fear and without reproach, whose judgment was sound and reliable. In doubtful cases the question would sometimes be asked, "What does Jelly think about it?" and his opinion was generally conclusive.

In his practice he gave his services freely the whole day and every day without regard to himself. Any poor, suffering patient would go to him sure of sympathy and help, given so unostentatiously, that *he* seemed the one receiving a favor. He shrank from no situation, however difficult and dangerous, if he saw that it was a matter of duty.

He was the most gentle, loyal and tender of physicians and friends, always anxious to serve, but expecting nothing in return Those who knew him, both respected and loved him; yet he was so modest and unconscious of his own merits that it was impossible to make him realize the depth of their feeling for him.

His life was a continual but glad sacrifice to duty. The strain was greater than he realized and finally he broke under it, but hero that he was, he struggled on without murmuring to the last. He was a noble man, and this memory of him will always be an inspiration to his friends.

Dr. Jelly belonged to a number of societies, among them the American Medical Association, the American Medico-Psychological Association, the New England Society of Psychiatry, the Boston Society of Psychiatry and Neurology, the Suffolk District Medical Society, the Boston Medical Library Association, the American Association for the Advancement of Science, and the Natural History Society.

He was consulting physician to the Massachusetts General Hospital and the New England Hospital for Women and Children.

He was married twice and his second wife survives him. There were no children.

Half-Yearly Summary.

ARKANSAS.—*State Hospital for Nervous Diseases, Little Rock.*—There is under construction, to be finished July 1, a building to accommodate 150 patients. It has but one floor and is intended to house and care for all of the feeble white female patients of the institution, with abundant veranda or porch space for caring for tubercular women in the institution. These porches are to the south and east, will be screened against insects and provided with casement windows that may be closed in especially stormy weather. On separate wings connected by a short hall will be placed the toilet facilities and the bath and clothing rooms. The dining room and kitchen will be practically separate buildings but are connected by an enclosed corridor. While the building spreads over a lot of ground space, it will be practically open when the weather permits, thus furnishing almost out-of-door living for at least eight months of the year in this latitude.

The hospital building that accommodates forty women and twenty men has been thoroughly renovated and repaired, and there has been installed a high pressure steam sterilizing apparatus for dressings, hot and cold water, instruments, and utensils. Also a completely equipped operating room on the female side. A surgical dressing room on the male side has been fully furnished and equipped.

There is under contract a complete hydrotherapy equipment to be used for men and women. Also, there is a contract for installing continuous flowing baths for the female and male receiving wards.

A laboratory, with such equipment as is necessary for carrying on clinical pathology for all of the needs of the institution, is completed and in operation.

The general kitchen has been remodeled and refurnished throughout. Every type of cooking utensil necessary for a first class hospital kitchen has been provided.

On January 1, of this year, a system of case taking and record keeping for all patients admitted on and after that date, was instituted and has been carried forward to this day. This system of examining and record keeping is patterned after that in use in New York and Illinois. In addition to the examination of the newly admitted patients, all of the patients in the institution are being re-examined and transferred to this loose leaf system of record keeping.

A graduate nurse has been engaged and installed in the position of Supervisoress or Chief Nurse. The hospital service on the female side is

likewise in charge of a graduate nurse. It is the intention to open a school of instruction for attendants and a training school for nurses on September 1, of this year.

CALIFORNIA.—*Psychopathic Hospital, Los Angeles.*—Plans have been prepared for the erection of a psychopathic ward to be erected on the county hospital property on Mission Road. The building will measure 224 by 142 feet and will surround a court 120 by 72 feet. The front portion will be three stories, and the wings and rear two stories in height. There will be two wards of eight beds each and 82 single rooms. The cost will be about $100,000.

COLORADO.—*State Hospital for the Insane, Pueblo.*—It has been found impossible to transfer the 100 insane patients from the Denver County Hospital to this hospital as it is too overcrowded.

CONNECTICUT.—*State Colony for Epileptics, Mansfield.*—An appropriation of $147,550 was passed by the last General Assembly for the construction of buildings, sewage system, water supply, power house, etc.

DISTRICT OF COLUMBIA.—*Government Hospital for the Insane, Washington.*—Additional porches in the Oaks Group have been enclosed and also one in Allison—C.

The work recently recommended for increasing the safety of Howard Hall (the prison building) has been completed.

The work of changing the electrical installation from direct to alternating current is going on. Three-fourths of the institution has been rewired and considerable new machinery has been installed.

A pasteurizing room is being installed in the cold-storage plant and will shortly be in operation.

The scheme of recouping the herd from within, instead of purchasing cows from outside, which was started a number of years ago, is now worked out so that it is no longer necessary to purchase any cows, and the cows that are raised are, on the average, better milkers than those formerly purchased.

The breaking out of hog cholera, a short time ago, caused the immediate sending of all hogs, of sufficient size to slaughter, to the public abattoir, where they were slaughtered under government supervision, while the remaining hogs were immunized by hog cholera serum by the Bureau of Animal Industry. The only deaths, since then, have been of one sow and four of her sucklings, which were sick before the immunizing injections were given.

A new main entrance with roadways is being built to accommodate the large stream of traffic which has taken place since the new opening of the hospital extension.

Special instruction has been given during the past winter in the training school in the methods of preparation of food, particularly of sick diet. This instruction has been given by the chef.

Several hundred new books have been added to the circulating library for patients. Approximately 1000 books are in continuous circulation from this library. It may be said that practically all of these books are taken out by patients and not over a couple of dozen by employees.

Recent arrangements have been made with the Juvenile Court of the District for the receipt of children about whom some question arises as to their mental condition for 30-day periods of observation with a report back to the court. This is believed to be a material step in advance of this jurisdiction, the court availing itself of the opportunity by special methods of investigation for determining the mental condition of juvenile delinquents, and so being able to more intelligently dispose of the cases.

The usual course of instruction was given this year to the medical internes and comprised 30 lectures and 10 clinical exercises. The hospital secured the services of Dr. Alsberg, of the Department of Agriculture, who gave four lectures on the chemical composition of the nervous system.

A field worker in eugenics, trained under Dr. Davenport of Cold Spring Harbor, has been on duty for the scientific study of heredity in relation to mental disorders. She has also been performing certain other field duties in connection with the discharge of patients and the investigation of home surroundings, etc.

Dr. Pfeiffer, of the Pathological Department, has gone to Europe for six months to study in the laboratories there.

Last summer the principle of endeavoring to get young psychologists to come here for short periods to do work upon special problems was inaugurated. Last year Miss Kent spent several months at the hospital in working upon the problem of habit formation. The result of her work may be found in the Psychological Review, Vol. 18, 1911, pp. 375-410. This coming summer arrangements have been made for a post graduate in the Psychological Department of Cornell University to come here to make a special study on the application of occupation as a remedial agent.

As supplementary to the method of cataloguing cases which was reported in this JOURNAL (January, 1911), a scheme of classification for cataloguing purposes has been adopted and will be published in this JOURNAL.

ILLINOIS.—The State Board of Administration, the State Charities Commission, the State Civil Service Commission and the superintendents of seventeen state charitable institutions, at a meeting held February 8, 1912, discussed the desirability of creating a special class of nurses to care for the insane, and a committee was appointed, consisting of Drs. Athon, Wilgus, and Cohn, to outline a course of study and report at the November conference.

—*Kankakee State Hospital, Hospital.*—The classes in arts and crafts are continued under the care of a lady teacher of several years' experience in this line of work. This teacher also lectures to the classes, picking out timely, entertaining topics, and her efforts are much appreciated.

The ordinary allowance here is $175 per year, and, in addition to this, there is allowed an Improvement of Grounds Fund, a Special Fund for the Psychiatric Institute, and an Ordinary Repair and Improvement Fund of $64,000 per annum. The force of mechanics is being increased at this time in order to catch up with some of the repairs and improvements which have been neglected. On the wards there is the usual difficulty in obtaining physicians and nurses and attendants. It is really impossible to develop the service to the high grade desired under present conditions in this regard. In regard to work actually accomplished, it can be mentioned that the mechanical department has added many good features to the kitchen equipments; that several cottages have been remodeled, increasing the floor space and improving sanitary conditions; that one of the deep well pumps has been taken out and defective parts renewed; and, lastly, that the new building, with a capacity of 76 beds for untidy patients, has been opened for occupancy. A busy year is anticipated in all departments. The population during the past six months has averaged not far from 2650 patients, and it is with pleasure to be added that there is now no restraint or seclusion except for surgical reasons.

—*Anna State Hospital, Anna.*—A kitchen is under construction at a cost of $50,000 to replace the one burned in 1909. An electric passenger elevator has been installed in the hospital building at a cost of $2500. An Edison Kinetoscope has been purchased and a motion picture show is given in the chapel once a week.

All the graduates from the Nurses' Training School have successfully passed the state civil service examination for trained nurses.

INDIANA.—Plans are being prepared and a site selected for a new hospital for the insane which will probably be located near Indianapolis.

—*Northern Hospital for the Insane (Longcliff), Logansport.*—The only improvements contemplated are the extension of the mechanical department, and a new greenhouse.

—*Central Indiana Hospital for the Insane, Indianapolis.*—The new chapel and amusement hall, now under course of construction, embodies three distinct features: first, an auditorium of ample proportions to conduct chapel exercises, provided with all facilities for staging large entertainments; second, social quarters for the patients; third, social quarters for the employees.

1. The auditorium, a room ninety-eight feet long and seventy feet wide, is designed to accommodate one thousand people. The roof is supported by iron trusses, thus eliminating the use and necessity of columns and supports. A large stage equipped for modern demands is augmented by a battery of dressing rooms and toilet facilities. A gallery extends along the rear of the auditorium and special provisions have been made to meet the demands of a moving picture apparatus. The auditorium is provided with ample emergency exits.

2. The basement of the structure is devoted entirely to the social quarters of the patients and include recreation rooms, reading rooms, billiard rooms and bowling alleys. Access to these quarters is from the lawn grade and entirely separated from the doors to the auditorium proper.

3. The third distinct feature of the scheme is the social quarters for the employees. These quarters have been designed with a view to complete isolation, although an integral part of the structure. The sexes have individual quarters, including social rooms, the largest of which is seventy feet long and twenty-two feet wide.

The building is of the steel skeleton type of construction with a steel frame roof covered with slate. The foundation is concrete. The structure is of Gothic design; of red brick, trimmed with stone. The total area of all quarters, including the auditorium, amounts to 12,500 square feet; the cubic contents of the building amounts to 513,000 cubit feet. The total cost of the structure including heating, lighting, plumbing and seats will be $50,000.

IOWA.—*Cherokee State Hospital, Cherokee.*—The institution has an appropriation of fifty thousand dollars for the erection and equipment of a hospital for the care and treatment of the tubercular insane. Plans are now being considered and perfected for such a building. Active building work will begin as soon as plans have been decided upon. Minor repairs and betterment to the existing buildings are under consideration, and will no doubt be carried out during the present year. Further improvement of the grounds will be among the activities of the present spring and coming summer. A large open reservoir for the accumulation and storage of soft water, to be used in the laundry and for boiler purposes, is under consideration. The present water supply, while abundant and excellent for potable purposes, is undesirable for laundry and boiler purposes on account of its hardness. The institution library is gradually being enlarged and many new books and current periodicals added, and faith in the importance of the institution library in the work is becoming more and more pronounced. In the treatment of patients, the medical staff has come to depend more and more on the systematic use of the hydro- and electrotherapeutic equipment.

KANSAS.—The State Board of Control has selected Larned as the site for the new hospital for insane for which $100,000 has been appropriated.

—*Topeka State Hospital, Topeka.*—The greatest improvement has been the building of a Reception Hospital, which will be devoted entirely to the treatment of acute and curable cases. This is arranged for the accommodation of both sexes, and will have a capacity of 130 beds. With the completion of the installation of the plumbing and water service, etc., the building will be ready for occupancy about May 1.

The wards proper consist of two wards on either side of a center building. In the arrangement of the wards, an effort has been made to eliminate

almost entirely the dormitory, and the space is devoted largely to single rooms. From the lower ward on either side is a detached feature, for the care of the noisy cases. Here is situated on either side the continuous baths. The second floor of the center consists of a complete surgical equipment in front, with hydro-therapeutic and electro-therapeutic equipment in the rear. The first floor center contains the resident physician's quarters, reception rooms, dining rooms for patients and nurses, together with kitchen, refrigeration, etc.

The total cost of the building and equipment will be $125,000.

—*State Hospital for Epileptics, Parsons.*—There are at present 460 patients in the institution and 25 absent on parole.

There was a mild epidemic of typhoid at the institution last year. The disease was evidently brought to the hospital by some recently admitted patient who was a typhoid carrier. The water and food supply for the various cottages of the colony come from common sources, but the typhoid was limited strictly to the inmates of one building. Ten patients and one nurse contracted the disease. There were three deaths among the patients. All the patients and nurses connected with this building, about 100 individuals, were vaccinated with typhoid bacterins. This appeared to control the epidemic as no more cases developed.

A new cottage for boys is under construction at this time. The excavation was completed last fall, but on account of the unusually severe weather of the winter, further work was interfered with. This cottage will accommodate 40 patients.

A small appropriation was allowed by the last legislature for the erection of a school building. It was found, however, that a suitable building could not be erected with the amount allowed and the appropriation will lapse. Some advances have been made in the school work, but inadequate facilities have prevented this work being extended as far as desired.

A considerable amount of landscape work is contemplated during the coming season.

KENTUCKY.—*Central Kentucky Asylum for the Insane, Lakeland.*—The legislature has just passed a law, which has been approved by the governor increasing the per capita allowance from $150 to $155, which will be of some benefit toward meeting the current expenditures, but which is much less than was asked, and will not permit the installation of any new equipment of consequence. It had been asked that the per capita allowance be increased to $180. This applying to all the institutions for the insane in the state.

In the same bill the names of the institutions were changed to that of "State Hospitals for the Insane," which will become effective about July.

During the past year there has been opened at this institution a modern tuberculosis pavilion, with a capacity of twenty-four, at a cost of about $10,000. This building is constructed of wood and concrete, has a twelve-foot porch running its full length, 180 feet, on which the separate compartments for patients open with double glass paneled doors and is so

arranged that the amount of open air can be regulated, according to the stage of the case. The building also has up-to-date toilet rooms, sitting rooms for both sexes, a diet kitchen, and an independent heating plant.

The water main running from the city of Louisville, a distance of nine miles, with an elevated tower and tank at the institution, for which an appropriation of $65,000 was made two years ago, has been about completed.

A training school for nurses has been started, and a moving picture apparatus installed.

MAINE.—*Eastern Maine Insane Hospital, Bangor.*—The capacity of the hospital has been increased by the opening of the new building for male patients in January, 1911. This is a three-story brick and stone building of fire-proof construction, uniform in design with the other buildings of the hospital group and thoroughly modern in its appointments. Each of the wards accommodates 50 patients in twelve single rooms and dormitories having a capacity varying from 3 to 15. Two of the wards in this building are in charge of women nurses. The admission ward, which occupies the second floor, is equipped with continuous baths, and there is a pavilion with eight shower baths and a commodious dressing room, in connection with the corridor connecting the male wards and available to all the male patients.

Rooms for mattress making, broom making, furniture repairing, making of picture frames, etc., are equipped and in operation in the basement, and a tailor shop has been opened in one of the wards under the supervision of the women nurses.

A laboratory for pathological and bacteriological work has been in operation during the year under the charge of a member of the staff, who devotes practically his entire time to the work. Autopsies (18) were obtained in 36 per cent of the deaths during the last fiscal year. Considerable work is being done in cerebro-spinal fluid and Wassermann reaction in addition to the ordinary laboratory activities.

The sewing room has been moved to larger quarters on the wards, a hand loom installed, and an increasing number of patients is being interested in knitting, fancy work, rug weaving, basketry, and sewing.

The installation of a moving picture machine and of stage scenery in the assembly hall, has made it possible to give enjoyable and inexpensive entertainments during the winter months, in addition to the regular weekly dances.

Last fall some of the employes, on their own initiative, organized a band which, of late, has been furnishing pleasing music for some of the entertainments. A choir was organized among the patients and employes in the fall and has added much to the interest and enjoyment of the Sunday services.

The tubercular hospital has been in successful operation since the spring of 1910, and provides accommodations not only for the tubercular patients of this hospital, but also for those transferred from the hospital in Augusta.

Staff meetings are held usually four mornings of each week, at which all

new patients are presented after the case has been carefully studied and worked up by the staff physician.

The most urgent needs of the hospital at the present time are—a herd of cows, a farm colony, storehouse and cold storage plant, and a congregate dining room.

The population of the hospital on March 1 1912, was 524—men 290, and women 234, an increase of 57 patients during the year.

MARYLAND.—The State Lunacy Commission is asking for an appropriation of $800,000 to complete its plan of state care. A fourth of this amount is to be used to purchase a site and erect a hospital upon the Eastern Shore.

The Maryland Psychiatric Society took part in the Health Conference which was held in Baltimore under the auspices of the Medical and Chirurgical Faculty. On the evening of February 22, Dr. Dunton, the secretary of the society, gave a short talk upon mental hygiene, taking as a popular title "How Can I Make My Child Mentally Strong?" Dr. Herring, secretary of the Lunacy Commission, also gave a talk upon the plans of the Commission and what had been accomplished, while Dr. G. M. Linthicum spoke on alcoholism. The next meeting of the society will be held on May 3 at the Maryland Asylum and Training School for Feeble-Minded Children, when medical work of state hospitals will be discussed by Drs. Purdum and Dunton, and Dr. E. B. Huey, of the Phipps Psychiatric Clinic, will discuss the Home Supervision of Feeble-Minded Children.

—*Maryland Hospital for the Insane, Catonsville.*—The old kitchen has been enlarged to double capacity, an entire new equipment provided, and a refrigerating plant installed, at a cost of $25,000.

A new wing has been erected in connection with the female department, 116 x 46 feet containing a congregate dining room for untidy patients, an industrial shop for females, and apartments for the nurses.

Industrial shop work for women will be made a feature in this new building, especially with reference to willow and raffia work.

—*Springfield State Hospital, Sykesville.*—The residence of the superintendent, the old historic Patterson mansion, was destroyed by fire early in February. Preparations for rebuilding were begun at once and the work is already under way. The two new cottages, one for men and one for women, which have been under construction, are nearly completed and will soon be ready for occupancy.

—*Hospital for Negro Insane, Crownsville.*—On March 7, 1912, a fire destroyed the large frame building which has been used as temporary quarters for the working force of about 60 patients. These have been grading, road making, etc., and attending to the willow culture which is to be one of the chief industries of this hospital. There were fortunately no casualties, but there was a complete loss of the building and contents. Dr. Winterode,

the superintendent, lost all of his personal effects. New temporary quarters have been erected near the site of the new building which has now been completed to the first floor.

MASSACHUSETTS.—*Gardner State Colony, Gardner.*—At the colony it is the endeavor to interest the patients in industries, and within the past two years two industrial buildings have been built, one for men and one for women, where certain cases are taught the inside industries, and so far they have proved very successful.

Systematic effort to re-educate the younger cases of dementia precox is contemplated, but as yet little has been done.

MICHIGAN.—At the legislative session of 1911, all acts appropriating money for the extension of the existing state institutions, were vetoed by the governor, as a result the hospitals for the insane were halted in their growth, and some embarrassment is likely to result before conditions are corrected. In order that the subject of future provisions may get before the succeeding legislature in a definitely conceived plan, the Joint Board of Trustees of the state hospitals has this matter under consideration. It has been suggested that some plan be presented to the legislature, whereby the smaller institutions shall be increased so that all shall, eventually, be brought nearer a uniformity of size. This will involve, probably, a redistricting of the counties.

By the action of the last legislature the titles of the institutions for the insane were changed to state hospitals, each institution deriving its distinctive name from the city where located.

The Joint Board of Trustees has under its consideration suggested amendments to the insanity law, whereby the present imperfections in the provisions for the commitments of voluntary patients may be corrected.

—*Pontiac State Hospital, Pontiac.*—This institution is now equipped with a battery of five vertical water-tube boilers, with a combined capacity of 1400 horse-power.

The institution lost, on February last, two officers of many years' service. The steward, Mr. Edward C. Smith, who has been connected with the hospital for nearly 25 years, relinquished his position because of failing health, and Dr. Jason Morse, assistant medical superintendent for the past 17 years also resigned to make his home in California.

—*Kalamazoo State Hospital, Kalamazoo.*—Since the legislature of 1911, and in accordance with the new system of naming the asylums, this institution is now called Kalamazoo State Hospital.

For economical and other reasons all appropriations requested by the various state hospitals were deeply cut by the legislature so that very little new construction has been undertaken during the past year. This hospital has just completed a pathological building costing between $6000 or $7000 and is now in quest of a pathologist to take charge of it.

MINNESOTA.—*Hospital for the Insane, Fergus Falls.*—During the winter two attendants of this hospital were attacked with smallpox, but fortunately there was no spread of the disease to the patients.

MISSISSIPPI.—*East Mississippi Insane Hospital, Meridian.*—About six months ago a hydrotherapeutic outfit was put into service and has given satisfactory results.

An appropriation was made for an additional story to be added to one of the one-story cottages which will make a slight increase in capacity. Also for an ice plant and refrigerating rooms, a new bakery, and an addition to the kitchen.

A hennery has recently been established which is expected to supply chickens and eggs for the hospital.

MISSOURI.—*State Hospital for the Insane, Fulton.*—A new building for the care of tuberculous insane has recently been opened. Its cost was $50,000.

—*State Hospital No. 3, Nevada.*—During the past six months a considerable advance has been made in the medical service. Each new case is subjected to a systematic examination. This includes lumbar puncture and Noguchi serum test of the spinal fluid and a Wassermann test in all cases where such is deemed advisable. Salvarsan has been given to a number of cases.

A diet kitchen has been established together with other facilities for caring for the acutely sick.

An industrial building has been opened and a teacher employed to instruct the patients in various forms of handicraft.

A training school for nurses has been established under the supervision of a competent superintendent of nurses. There has also been a considerable increase in the surgical equipment and in that of the laboratory.

A new heating plant has been installed.

—*Glenwood Sanitarium, Glendale.*—This sanitarium was incorporated February 1, 1912. It is situated at Glendale, a suburb of St. Louis. A feature is outdoor treatment, the patients living in tents when it is felt that an abundance of fresh air will be beneficial. A number of alcohol habitues have undergone the McBride treatment with excellent results. It is expected that the bungalow cottage plan will be followed out and manual work in the garden or on the farm will replace the usual forms of occupation.

NEBRASKA.—*Nebraska State Hospital, Ingleside.*—Within the past year there was opened a small three-story detached fire-proof building, accommodating thirty patients on each floor or ninety patients in the entire building. The dormitory plan has been carried out in this building as in the others here.

At the present time there are being completed two hydro-therapeutic departments, one for the male and the other for the female department of the institution.

Within the past few months there was installed a rather complete electro-therapeutic room, equipped with X-ray and other modern electrical appliances.

Since the opening of the hospital, meals have been carried in closed food carts overland from the general kitchen to the various buildings, and while ordinarily this has answered in a very satisfactory way, yet there was some difficulty in cold weather in having meals served warm; hence, provision has been made, and work will very soon start on a new under-ground run-way or tunnel, seven feet wide and seven feet high in the clear, built of concrete and equipped with small food cars and tracks for supplying meals to the various buildings. This tunnel will be seventeen hundred feet long.

The individual dining rooms, that is, a small dining room on each ward, are in use here and have been for several years past, which is found very satisfactory.

Female help is employed throughout the entire male department of the institution and has been for the past six or seven years, the service being very satisfactory.

—*Norfolk State Hospital, Nofolk.*—The new women's building that has been under construction for more than three years has now been completed. This is a large, commodious stone building, fire-proof throughout, and three stories high. On the first floor is located the dining room for women. This is a large, well lighted, as well as well ventilated room, having the latest and most substantial terrazzo floor; and also the diet kitchen, drug room, laboratory, morgue, and the new hydro-therapeutic apparatus.

As this is the first hydro-therapeutic apparatus installed in any of the State Hospitals, it is expected to obtain results, from the various new methods of applying the water treatment, that have been impossible to get by the old method of treatment.

The hospital laundry has been re-arranged, and a large drying room has been added. The latest and most approved metal dryers have been installed, also a very large washer, extractor, and mangle.

New Jersey.—*Essex County Hospital, Cedar Grove.*—Population: Male 702, female 802, total 1504.

On January 1, 1912, the Board of Freeholders rearranged the staff and appointed Dr. Joseph Malatesta second assistant physician and Dr. Geo. W. Davies, fourth assistant physician. Dr. Henry G. Smith and Dr. Drew Wardner were appointed medical internes.

During the year a consulting staff was appointed.

A dental outfit has been installed and a visiting dentist holds weekly clinics.

Modern equipment for the new pathological laboratory has been installed.

A photographic outfit was purchased and photographs of the patients are now being taken.

The use of mechanical restraint at the hospital has been practically abolished during the past year.

A greenhouse has been completed and a florist appointed.

Occupation and re-education of the patients has been stimulated by the establishment of an industrial school. Broom-making machinery, carpet and linen looms have been installed, woolen goods, artificial flowers and a varied line of fancy articles are made, also raffia and reed baskets of all sizes.

These articles met with a ready sale at a fair held in the amusement hall in November. The combined result of enthusiasm, interest, and net profits were highly satisfactory. The proceeds are used to provide entertainments for the patients and to purchase new material for the school.

In June the training school will celebrate its 25th anniversary by graduating the largest class in the history of the hospital.

NEW YORK.—*Bellevue Hospital, New York City.*—Recent action by the trustees of this hospital amalgamated the alcoholic, prison, and psychopathic wards into an administrative unit under the charge of the resident alienist.

—*Manhattan State Hospital, Wards Island.*—Following is a list of improvements made since the issue of the last half-yearly summary:

The new group of four cottages, with kitchen building, has been fully equipped and are now occupied.

New wire window guards have been placed on the windows of the East Building.

An electric power elevator hoist has been installed in the storehouse.

Concrete flooring has been laid on the freight section of the city dock, and concrete stringers on the freight and passenger dock.

The old tin and galvanized gutters, leaders and valleys have been replaced by copper ones on the west power house, old band room, east division, female home, ward 14, laundry, west boiler house, east stable and ward 45.

The interior of walls 17 to 21, 23, 25, 26, pavilions, the Verplanck Building, the annex building, and the industrial shops have been painted.

During the past six months there have been a few cases of measles, two nurses and one patient, but without the development of an epidemic. The diphtheria carrier (women patient), referred to in the last summary, was ultimately rendered free from the diphtheria bacillus and was removed from quarantine.

The commitment of patients has been divided between Central Islip State Hospital and this institution. A large number of insane aliens continue to be received, but the Department of Immigration and the Board of Alienists of the state of New York have been active in securing their deportation.

—*Utica State Hospital, Utica.*—In the last summary mention was made of the possibility of acquiring a new site for the Utica State Hospital and the building of a new institution to accommodate two or three thousand patients.

The following bill was passed by the legislature now in session and signed by the governor:

"Section 1. The sum of one hundred fifteen thousand dollars ($115,000), or so much thereof as may be necessary, is hereby appropriated out of the moneys not otherwise appropriated payable by the treasurer on the warrant of the comptroller for the purchase of a new site for the Utica State Hospital, comprising approximately one thousand acres of land, at such point as the State Commission in Lunacy may determine, under the authority granted by chapter seven hundred sixty of the laws of nineteen hundred and eleven.

"Section 2. This act shall take effect immediately."

Another bill has been introduced appropriating one hundred and fifty-five thousand dollars ($155,000) for commencement of work on new site, including railway spur, power house, reservoir, water supply and lines, and remodelling of buildings.

—*Rochester State Hospital, Rochester.*—A large machine has been installed for sterlizing mattresses, bedding and other bulky articles.

A building is started for the care of contagious diseases.

New and up-to-date wiring is being put in the main building for the electric lighting.

Mental hygiene is being organized in Rochester under the Monroe County Committee on Mental Hygiene. Dr. Smith Ely Jellyffe gave a public lecture on March 28 on "The Causes of Insanity," which is expected to stimulate public interest.

—*Kings Park State Hospital, Kings Park.*—On November 13, 1911, a writ of habeas corpus was issued in the cases of A. M. B. and P. K. B., two sisters, in both of whom the diagnosis of paranoid condition had been made. The writ was obtained by a paroled patient who deemed the sisters wrongfully confined. One of the sisters was permitted to give testimony, but the case of each sister was then adjourned pending an examination by a physician appointed by the court. Such physician filed a report with the court sustaining in every respect the hospital's position and both patients were remanded to the custody of the hospital.

On December 19, 1911, a writ of habeas corpus was issued in the case of E. J. K., a paretic, who, at the time, however, showed some remission of symptoms. Testimony was given in this case by Dr. P. C. Washburn, assistant physician, and the case was adjourned. Without, however, taking further testimony the writ was then dismissed and the patient remanded to the hospital.

The new groups for 680 chronic patients are practically completed and buildings No. 1 and No. 2 are now occupied by patients.

Seven new Kirker-Bender fire escapes have been constructed at Group One.

A large number of outside doors which formerly swung inward have been altered to swing outward.

There has been an increase of approximately 25 per cent in the number of patients engaged in reed and raffia basket making, rug weaving, bookbinding, in the physical culture classes and in the elementary school. Four more special attendants have been allowed for this work so that there are now six special attendants thus engaged, two in charge of basket classes, one in charge of physical culture and calisthenic classes, one in charge of the elementary school, one in charge of the embroidery classes and one in charge of stenciling, pierced metal work, and artificial flower making, the last three occupations having been introduced during the present year.

A class in oil painting and in drawing has likewise been added to the occupational classes.

—*Willard State Hospital, Willard.*—An appropriation was made last year of $45,000 for improvements to the sewage disposal and water-supply system. An additional sum of $40,000 is being asked from the legislature this year to complete this work, which provides for the construction of filter beds for the water supply and an intercepting sewer along the lake shore extending to a point where tanks or receptacles will be placed. A survey of the grounds and buildings has been made preparatory to making plans and specifications for this work.

An appropriation of $7000 was made last autumn by the Lunacy Commission for the erection of a new barn at the grange to accommodate sixty head of cattle, with storage facilities for grain and hay. The work of construction will be commenced as soon as the weather permits.

—*St. Lawrence State Hospital, Ogdensburg.*—The re-education class for dementia præcox cases continues to be successful and considerable time and energy is devoted to this work.

The dispensary connected with the hospital continues to be an important factor in bringing the community more in touch with the physicians and people of the hospital district, and it is believed that much good is accomplished as a result of this work.

Additional continuous baths have been provided for the reception service.

Through the kindness of the State Conservation Commission, many additional trees have been granted. These will improve the appearance of the grounds materially.

—*Matteawan State Hospital, Fishkill-on-Hudson.*—Three new oak floors have been laid in the main building, replacing old worn-out pine floors.

An attempt has been made to place this hospital on the same footing as the State Hospitals throughout the state, employing the same classification and, so far as possible, the tables used by the State Commission. A number of State Hospital nurses have been employed, and the hospital work organized along State Hospital lines generally.

A new infirmary building is being erected on the south end of the new women's block, and it is expected to complete this block by the addition of two wards to the north, and a dining room and kitchen during the coming year.

A new exercise ground is to be established, enclosing some twenty acres of land to the north of the hospital, which is to be surrounded by an unclimbable iron fence on a cement foundation.

A new building to be used as an operating room with a room for the use of the ophthalmologist and dentist will be be erected.

The electric light plant is to be enlarged by the addition of one new generator.

A new storehouse and refrigerator has been allowed by the legislature.

The dairy barn, which is partially built, is to be finished.

A scullery is to be added to the present kitchen in the main building, and a new fire system is to be installed.

—*Craig Colony for Epileptics, Sonyea.*—During the winter four cottages, the Gentian, Eglantine, Primrose and Saxifrage, in the women's group, have been remodeled to some extent, thereby increasing their capacity; and a series of single rooms in the Schuyler Infirmary for women has been made into a small ward.

Tubs for continuous baths have been installed at the Schuyler Infirmary and Peterson Hospital.

Plans for a central school building at the Colony are now being prepared by the state architect and contracts will soon be let for the erection of this building.

The sewage-disposal plant has been re-arranged, and whereas formerly there were three large beds, they have now been subdivided into twelve smaller ones, with dosing and settling tanks.

Ohio.—At the semi-annual meeting of the Association of Assistant Physicians of the Ohio state hospitals, held at the Athens State Hospital, October 4 and 5, 1911, Dr. Clyde C. Kirk, of Toledo, was elected president; Dr. C. G. Edwards, of Gallipolis, vice-president; Dr. Mary K. Isham, of Columbus, secretary; and Dr. August C. L. Werner, of Dayton, treasurer.

—*Longview Hospital, Cincinnati.*—A detached building to be used as an amusement hall is under construction, having a seating capacity of 1100. In style it is Grecian with Corinthian façade and is fire-proof throughout. The latest improvements in safety scenery, stage curtains, moving picture apparatus, etc., will be installed, together with hot-water heating and fan ventilation.

There has been completed a new cold storage plant with a sufficient capacity to store three months' supply of meats, fruits, vegetables, etc. Fresh meats are hung in a fore cooler for several days before removal to the colder storage rooms.

A three-story fire-proof storehouse, in which is located the steward's and

bookkeeping departments, has also been completed. Also a new wood-working shop with ample accommodations for patients' fancy wood-working department.

PENNSYLVANIA.—*Home for Feeble-Minded, Philadelphia.*—The director of Public Health and Charities, early in December, awarded contracts for the construction of three cottages which will form the nucleus of the Home for Feeble-Minded to be erected at Torresdale. Two of the cottages will cost $70,968 each, and the third and smaller will cost $46,968.

—*State Hospital for the Insane, Danville.*—During the period covered by this summary, a refrigerator plant has been installed by the Automatic Refrigerator Company, of Hartford, Conn., consisting of rooms for cold storage of meat, and five other rooms, also an ice manufacturing plant capable of making two tons of ice per day.

Improvements to the laundry have been effected by the installation of an automatic dry-room, two metallic truck dry-rooms, one of three compartments, the other of four; a sterilizing washer, steam shirt bosom and wristband ironers, the whole driven by electric motor, this work being done by the American Laundry Machinery Company. Additional space was secured by using part of an abandoned boiler room, necessitating the laying of a new floor of steel and cement construction. The abandoning of the old wooden dry-rooms and additional space is a great advantage to the laundry department.

—*Friends' Asylum for the Insane, Frankford, Philadelphia.*—The important event of the past year has been the erection and equipment of the Hydrotherapy Building, named Hygeia. The building is located in the rear lawn. The house is rectangular, 50 feet long and 30 feet wide, with two stories and a commodious basement divided into several rooms for special purposes, as photographic and museum rooms, etc. The exterior walls are of mottled-buff brick laid in Flemish bond and are relieved by Kentucky blue stone sills and window caps. The front entrance is faced by columnar side supports of an unornamented portico design in the same stone. The general effect is in harmony with the surrounding group of buildings and it is an attractive addition to them. The entrance hall communicates with the hydrotherapeutic department by two doors and a neat stairway leads to the floor above. The hydriatic marble room on the first floor is the most important one, fitted with controller table, needle spray and rain douche fixtures, sitz bath, marble top shampoo table and warming oven for sheets. Besides there are the preparation room with electric light cabinet and fomentation sink; pack room with cots and pack sink; the electric full bath room; patients' robing room with dressing stalls and lavatory, and nurses' room. On the second floor the central space comprises a large room for special treatment, such as static electric machine, large vibrator for general and local application, leucodescent lamp and dark cabinet for eye examination. At the north, a special examining and operating room,

beautifully marbled and tiled and equipped in the most approved manner. To the south, a bright sunny solarium, furnished appropriately for relaxation. In the opposite corner are located the nurses' bed room and bath, and general lavatory. The basement of the building is connected with the general tunnel system of the asylum, which affords easy extension of the pipes, etc., for water, steam and electricity from the utility building not far distant and also gives ready passageway to and from the wards for the patients. The building, with its full equipment, was formally opened in October last by inviting a large number of physicians of the city and surrounding towns to inspect it. Interest in the subject has led to inquiries from different sources, and a number of committees from other hospitals have visited it to study its cardinal features. It has borne the test of experience for several months and from present indications it is likely to take a leading place in the auxiliary treatment of the hospital.

A plan of occupation and diversion for patients in nature study has been proposed as affording open-air exercise of a mild character suitable to all, as to age, sex and condition. In a way it resembles a modified type of golf without the complexity of balls and sticks.

To begin, the trees and shrubbery of the lawns and woodland need to be tagged with a number and indexed in a catalogue. At the same time the instructor prepares blue-print impressions of leaves, which are bound into books for practical use. With the aid of a book, which is made conveniently small to be carried, the patient and nurse go forth on a quest to identify these objects of nature by the size and form of the leaves. In the large and diversified grounds of institutions of this character may be found a great variety of growth, from the sturdy trees of the primeval forest to the rare specimens of modern horticulture. Many individual trees of the same variety are scattered throughout these grounds.

One scheme may consist in laying out several courses which would have for its object a search for the different trees of the same group. For instance, suppose there were twenty sugar maples in the premises numbered in serial order. The patient and nurse go hunting until they find the twenty trees designated, in much the same manner as one would go over a golf course, which may include the walks of several days. Other studies and games, that will suggest themselves, may be worked out from this general plan.

—*State Hospital for the Insane, Norristown.*—During the past two years in the women's department of the Norristown State Hospital, a receiving ward has been equipped, and in connection with the convalescent section, a sharper line of demarcation is drawn between the acute and chronic services —new cases being examined and analyzed in greater detail.

Additional continuous baths and a hydrotherapeutic plant are about to be installed. An addition is being made to the nurses' home.

Being unsuccessful in securing an appropriation for a reception building at the 1911 session of the legislature, it was decided to remodel a portion of one of the old ward buildings to meet this requirement as far as possible.

One of the old dormitories was finished and remodelled for the purpose of the reception dormitory. Rooms adjacent to this dormitory were fitted up for the purposes of diet kitchen and examining rooms. The reception dormitory was placed under the charge of a female nurse. It is found that these changes have increased the efficiency of the reception service considerably and they have been commented upon favorably by many of the new patients.

There are now about twenty-five female nurses employed in the male department, in four different buildings, as follows: the infirmary, the tuberculosis cottage, the building for terminal cases and the reception building.

The work in arts and crafts among the men has been greatly extended during the past year. A trained woman has been giving her whole time to the instruction of the men and the following arts and crafts have been carried on: rug making upon small hand looms; the making of large rugs from cotton rags, which are dyed and sewed together by the patients; the making of cocoa-fiber door-mats; the making of willow and raffia baskets; punched brass work; the decorating and illuminating of prints, together with passe partout work.

There have been separate classes in the morning and afternoon engaged in this work and the industry has also been extended among patients on the various wards who are unable for various reasons to go to the work room. This work has been found to be most beneficial as a therapeutic agent, particularly among cases of involutional melancholia whom it was impossible to interest in anything else.

For the past two years there has been a resident dentist, and a fully equipped dental department has been installed. This has been of great service to the institution.

At the 1911 session of the legislature an appropriation of $10,000 was secured for a hydrotherapeutic plant for the male department. Out of this sum a special building will be erected this summer, with a full hydrotherapeutic equipment on the first floor. The second floor will be fitted up as a solarium with rooms also for electrotherapeutic equipment. In addition to this, the one continuous bath tub in use at present will be supplemented by five tubs which will be sufficient for present needs.

The tuberculosis cottage will be remodelled and an annex added with the $5000 appropriation secured at the last session of the legislature. This will be a much-needed improvement.

A large farm building, about a mile and a half from the main institution, will be remodelled for the purpose of a farm colony for the working patients. $5000 was secured for this purpose from the legislature.

The new laundry building is completed and the last of the machinery is being installed. This building is thoroughly modern and will be one of the best institution laundries in the country if the prediction of critics is fulfilled. A new carpenter shop is also under construction.

$40,000 was spent in establishing a high-pressure pipe line around the buildings for the purpose of fire protection, together with the installation of a high-pressure pump. The fire protection is now very good.

Several thousand dollars were spent during the past year in remodelling the kitchen and laying a new tile floor therein. A new ventilating system was also installed to carry out the odors of the kitchen.

A new sewage disposal plant was put into operation during the past year. This consists of a septic tank in which the sewage is treated with chlorinated lime. After this treatment the sewage is sprayed by automatic sprinklers over a bed of rocks and gravel. This system has been found fairly satisfactory thus far.

—*Warren State Hospital, Warren.*—Several appropriations for bettering the hospital conditions were granted by the last legislature.

Five thousand dollars was given for the substitution of coal burning grates in many of the boilers, this change being necessitated by the increased price of natural gas.

Another appropriation of $5000 was granted for installation of an elevator in the service building.

A modern bake-oven has been installed, $2500 being appropriated for that purpose.

Appropriations for work to be done this summer are as follows: $10,000 for a new barn; $2500 for erection and equipment of a new dairy house; $6000 for the erection and equipment of a garbage disposal plant. Provision was also made for the installation of a fire main with hydrants located near the various buildings, to afford fire protection.

Since the erection of the hospital, the sewage has flowed into the nearby river, and the State Board of Health has forbidden the continuance of this practice, and the sum of $40,000 was appropriated for providing adequate means of sewage disposal satisfactory to the State Board of Health. Plans have been submitted to, and approved by the Board, and a filtration system will be constructed during the coming summer.

—*Homeopathic State Hospital for Insane, Rittersville.*—This hospital was completed March 3, 1912, and it is expected will soon receive patients.

Rhode Island.—*Butler Hospital, Providence.*—During the past year Butler Hospital has co-operated with the superintendent of schools and the superintendent of health of Providence in having a member of its staff, Dr. Frederic J. Farnell, examine and report upon defective children. In all eighty children were examined in the laboratory. The work is useful in view of the possibility of detecting while in their early stages such asthenic types of childhood as might develop in retrograde evolution into insane or criminal persons. Work has also been done in the laboratory in serological diagnosis not only for Butler Hospital, but for the State Hospital at Howard, the Rhode Island Hospital Out-Patient Department and the City Hospital.

The most important addition to the present group of buildings is the Potter Home for Nurses, now in course of erection. The building measures 158 feet long by 34 feet wide and its front elevation faces east towards the

Seekonk River. The Home is built of brick with brownstone trimmings and follows the Tudor type of architecture. It is arranged to provide accommodation ultimately for fifty-two nurses. There are open loggias on the third floor, designed to give the nurses an opportunity to sleep out of doors. These are so arranged that if necessary they may be subdivided into eight sleeping rooms.

A squash tennis court has recently been built by private subscription for the use of patients.

—*State Hospital for the Insane, Howard.*—The latest addition to the physical plant of this hospital is a building which has officially been given the name of "The Reception Hospital." The function which it is intended that this building, with its working organization, shall fulfill is that of a hospital for receiving all new and acute cases committed to the state hospital and retaining such cases under observation and treatment as long as the circumstances of the cases, as relates to the application of early care, require.

The long dimension of the building, east and west, is 456 feet. The structure contains a central section on the east of which extends the department for women and on the west that for men.

Each of these departments consists, first, of a two-story section occupied by wards and day rooms and on the extreme ends of these sections are disposed, at right angles with the long dimension of the building, two wings of these stories containing single rooms on the first and second floors and dormitories on the third.

At the center of the central section, on the south front, is located the main entrance, having a porch and driveway entrance protected by a porte-cochère.

The first floor of the central section contains reception and admission rooms and necessary offices. On the second floor over these rooms are the living quarters for the physicians who have charge of the reception hospital service. The third floor contains rooms for nurses, orderlies and other necessary employes.

To this general outline can now be added a more detailed description of the interior parts and their uses.

At the right and left of the admission rooms on the first floor are disrobing rooms and baths, one for men and one for women, which are to be used by incoming patients for the initial bath. Opening immediately out of the bath are chambers in which the patient will be placed in bed and where a preliminary examination will be made before assigning the patient to a ward or room.

Opening out of the hallway of the central section on the first and second floors and adjoining each ward is a dining room for patients with a connecting serving room to which food is conveyed from the basement by means of dumb waiters. There are four of these dining rooms, each having a seating capacity of forty-eight.

There are four wards. Each ward contains two sections for beds. Between the two sections is a large day space. On the front of the bed sec-

tions are out-of-door sleeping balconies, arranged to be open in summer and closed, or partially closed with glass in winter. Passing on one comes to the single-room section in one of the extreme wings to which are to be assigned patients who are unsuitable for the general ward. A part of these rooms are especially designed for the more disturbed cases.

Each ward on each floor is provided with lavatories arranged to serve both wards and sleeping balconies, a clothes room having a locker for each patient, linen rooms and utility closets.

In the extreme wings are located the general bathing facilities and also a room in each wing equipped with tubs for use in the continuous bath treatment.

In addition to the sleeping balconies are other balconies allowing ample opportunity for access to the open air. On the south end of each extreme wing is a commodious solarium.

In each of the end wings and arranged in connection with the ward sections is an iron stairway which serves the purpose of an enclosed fire escape.

Returning again to the central building, north of the hallway on the first floor, is located the surgical department and operating room, in connection with which are a sterilizing room, preparation room, etherizing room and general supply room. This surgical section is entirely cut off from any other portions of the building and is thoroughly lighted by north windows and overhead skylights.

In the central section also, a large platform elevator, arranged for hospital use and which can accommodate a wheel stretcher, rises from the basement to the top story.

In the basement is a kitchen in which will be prepared mainly the food for the patients and employes of the entire building. The nurses' and employes' dining rooms adjoin the kitchen. In the basement also is a department devoted to hydrotherapeutics with a complete equipment of baths and other devices used in this modern form of treatment.

The basement of the building extends well above grade, affording well-lighted rooms. Here are located the pathological laboratory, with animal room adjoining, and mortuary and post-mortem rooms.

The heating is furnished from the central boiler house. A pipe tunnel 462 feet in length connects the main group of buildings with the reception hospital in which are the steam and water supply lines and returns.

The method of heating is both direct and indirect. The indirect heating is by means of stack rooms in the basement, the warm air being forced into the wards by fans, the motive power of which is electricity. Flues for ventilation lead from the wards and rooms to the attics and discharge the foul air into chambers which exhaust through roof cowls.

The lighting is by electricity, the lamps in the patients' wards and departments being so controlled by a series of switches that they can be brilliantly or dimly lighted. All ward lights are enclosed in ground glass globes in order to obviate painful or dazzling effects.

The plumbing is of the most sanitary and durable type devised for hos-

pitals for the insane. The general bathing is to be done by means of shower baths.

There are 184 permanent beds for patients, 80 of which are distributed in the wards, 40 on sleeping balconies, 40 in single rooms and 24 in dormitories. Together with 40 beds for employes the building accommodates a total of 224 persons.

The cost of the building furnished is $320,000.

QUEBEC.—*Protestant Hospital for the Insane, Verdun, near Montreal.*—A new amusement hall to accommodate 600 patients is rapidly nearing completion, ground for it having been broken late in May, 1911. The building, the gift of a benefactor of the institution, is to be known as the "Douglas Memorial Hall." It is a one-story stone and brick fire-proof structure, with stage, dressing rooms, coat rooms, lavatories, etc., and a partial basement containing a small kitchen, supper room and serving room. The heating plant is that known as the "Webster System." The total cost of the structure, including stage and fittings, will be about $59,000.

A new chimney has been erected in connection with the boiler house; it is 140 feet high, with a capacity of 1000 horse-power; whereas the one which was torn down was of only 400 horse-power capacity.

TEXAS.—*State Epileptic Colony, Abilene.*—A new cottage for female patients is being built and will be ready for occupancy by September 1. It will accommodate about 35 patients.

Appointments, Resignations, Etc.

ADDLEMAN, DR. SARAH, appointed Medical Interne at Craig Colony for Epileptics at Sonyea, N. Y., November 8, 1911, and resigned November 28, 1911.

ALFORD, MR. L. B., Research Officer at Monson State Hospital at Palmer, Mass., resigned.

ASH, DR. J. EARLE, Pathologist at State Hospital for the Insane at Norristown, Pa., resigned January 1, 1911, to accept a position in the Medical School of Harvard University.

BARNES, DR. EDMUND J., Junior Physician at Manhattan State Hospital at Ward's Island, N. Y., promoted to be Assistant Physician, February 1, 1912.

BARNES, DR. FRANCES M., JR., Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., promoted to be Assistant Physician November 1, 1911.

BARRUS, DR. CLARA, for seventeen years Assistant Physician at Middletown State Homeopathic Hospital at Middletown, N. Y., resigned to open a home for mild mental and nervous invalids at Pelham, N. Y.

BARTON, DR. AMOS G., appointed Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., January 1, 1912.

BEACH, DR. W. H., appointed Resident Dentist at Craig Colony for Epileptics at Sonyea, N. Y., October 17, 1911.

BENNETT, DR. ARTHUR G., of Buffalo, N. Y., appointed Visiting Ophthalmologist at Craig Colony for Epileptics at Sonyea, N. Y., March 1, 1912.

BETOWSKI, DR. P. E., appointed Medical Interne at Craig Colony for Epileptics at Sonyea, N. Y., October 2, 1911, and promoted to be Junior Assistant Physician December 13, 1911.

BINNIE, DR. HELEN, appointed Medical Interne at Government Hospital for the Insane at Washington, D. C.

BISHOP, DR. ERNEST S., First Assistant Physician at Alcoholic Ward of Bellevue Hospital, New York City, resigned.

BONDURANT, DR. EUGENE D., formerly Assistant Physician at Alabama Insane Hospital at Tuscaloosa, appointed Dean of the Medical Department of the University of Alabama.

BOWMAN, DR. MARY R., appointed Medical Interne at King's Park State Hospital at King's Park, N. Y., March 4, 1912.

BRIGGS, DR. L. VERNON, of Boston, appointed a member of the State Board of Insanity.

BROWN, DR. EDSON C., Assistant Physician at Massillon State Hospital at Massillon, O., resigned to enter private practice in Mansfield, O.

BROWN, DR. SANGER, II, appointed Junior Physician at Manhattan State Hospital at Ward's Island, N. Y., December 7, 1911.

BRYAN, DR. W. A., Second Assistant Physician at Clarinda State Hospital at Clarinda, Iowa, appointed Night Medical Officer at Cherokee State Hospital at Cherokee, Iowa.

BURDSALL, DR. ELIJAH S., appointed Clinical Assistant at the Middletown State Hospital at Middletown, N. Y., November 5, 1911; promoted to Medical Interne February 23, 1912.

BURRIS, DR. M. G., Medical Assistant at Nova Scotia Hospital at Halifax, resigned.

BUSSE, DR. KATHERINE SNYDER, formerly a member of the staff of Southern Indiana State Hospital, died at Madison, Indiana, November 26, 1911, from cerebral hemorrhage, aged 48.

BUTTS, DR. HEBER, U. S. Naval Surgeon on duty at Government Hospital for the Insane at Washington, D. C., transferred to the Philippines March 18, 1912.

CALLAHAN, MISS JOSEPHINE, Superintendent of Nurses at St. Lawrence State Hospital at Ogdensburg, N. Y., appointed a member of the State Board of Examiners for Nurses.

CAMPBELL, DR. MERRITT BATES, formerly Superintendent of Southern California State Hospital at Patton, died suddenly at Heber, Cal., December 2, 1911, aged 68.

CARSON, DR. C. H., Second Assistant Physician at Norfolk State Hospital at Norfolk, Nebraska, promoted to be First Assistant Physician.

CARSON, DR. JAMES C., Superintendent of Syracuse State Institution for Feeble-Minded Children, resigned.

CHALMERS, DR. H. E., Assistant Physician at Eastern Maine Hospital at Bangor, Maine, resigned December, 1911, to enter private practice.

CHARLES, DR. THOMAS G., Assistant Physician at Kankakee State Hospital at Hospital, Illinois, resigned to enter private practice March 1, 1912.

CHILD, DR. H. T., appointed Assistant Physician at Kankakee State Hospital at Hospital, Illinois, March 1, 1912.

CHILDS, DR. JOHN S., appointed Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., January 10, 1912.

CLARK, DR. ASA, from 1892 to 1896 Superintendent of Stockton State Hospital at Stockton, Cal., died at his home in Stockton, January 20, 1912, from bronchitis, aged 87.

COBB, DR. GARDNER N., appointed Assistant Physician at Gardner State Colony at Gardner, Mass.

COBB, DR. O. HOWARD, Assistant Superintendent of New York State Hospital for Crippled and Deformed Children at West Haverstraw, appointed Superintendent of Syracuse State Institution for Feeble-Minded Children.

COLLIE, DR. J. R. M., appointed Medical Assistant at Nova Scotia Hospital at Halifax.

CONSER, DR. M. EDITH, Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., resigned December 20, 1911.

COPPEDGE, DR. THOMAS O., appointed Second Assistant Physician at State Hospital for the Insane at Raleigh, N. C.

COX, DR. OLIVER C., Medical Interne at Government Hospital for the Insane at Washington, D. C., resigned November 20, 1911.

CRICE, DR. T. J., Third Assistant Physician at Central Kentucky Asylum for the Insane at Lakeland, promoted to be First Assistant Physician July 15, 1911.

CURRIE, DR. THOMAS J., Second Assistant Physician at Willard State Hospital at Willard, N. Y., promoted to be First Assistant Physician January 20, 1912.

DARVAS, DR. MARGARETE, Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., resigned December 31, 1911.

DAVIDSON, DR. A. J., Interne at Central Kentucky Asylum for the Insane at Lakeland, promoted to be Third Assistant Physician July 15, 1911.

DAVIES, DR. GEORGE W., appointed Third Assistant Physician at Essex County Hospital at Cedar Grove, N. J., January 1, 1912.

DEWITT, DR. GRACE, Medical Interne at Government Hospital for the Insane at Washington, D. C., promoted to be Junior Assistant Physician January 1, 1912.

DISHONG, DR. G. W., First Assistant Physician at Norfolk State Hospital at Norfolk, Nebraska, appointed First Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Arkansas, November 1, 1911.

DOUGLAS, DR. G. F., appointed Second Assistant Physician at East Mississippi State Hospital at Meridian.

DUNLAP, DR. MINNIE C., appointed Third Assistant Physician at Eastern Kentucky Asylum for the Insane at Lexington.

DUNN, DR. CLARA, Assistant Physician at Cook County Hospital for the Insane at Dunning, Ill., was suspended on the charge of insubordination October, 1911, and was reinstated January 4, 1912.

DURGIN, DR. DELMER D., Junior Assistant at King's Park State Hospital at King's Park, N. Y., promoted to be Assistant Physician March 15, 1912.

EATON, DR. HENRY D., Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., resigned December 31, 1911.

EVANS, DR. SHELDON G., U. S. Naval Surgeon assigned to duty at Government Hospital for the Insane at Washington, D. C.

FAGLEY, DR. RAYMOND C., appointed Interne at State Hospital for the Insane at Norristown, Pa., June 1911.

FELDSTEIN, DR. BERNARD, Junior Assistant at King's Park State Hospital at King's Park, N. Y., promoted to be Assistant Physician December 1, 1911.

FELT, DR. PAUL R., Assistant Physician at Gardner State Colony at Gardner, Mass., resigned to enter private practice.

FERRIS, DR. ALBERT WARREN, Chairman New York State Commission in Lunacy, resigned, and was later appointed Resident Physician at the Glen Springs, Watkins Glen, N. Y.

FISCHBEIN, DR. ELIAS, appointed Junior Assistant Physician at Craig Colony for Epileptics at Sonyea, N. Y., December 28, 1911.

FOLEY, DR. EDWARD A., Assistant Superintendent of Anna State Hospital at Anna, Ill., transferred to Jacksonville State Hospital at Jacksonville, Ill.

FOSTER, DR. THOMAS R., Assistant Superintendent of Kankakee State Hospital at Kankakee, Ill., transferred to Anna State Hospital at Anna, Ill.

FRUNDT, DR. OSCAR C., Medical Interne at Matteawan State Hospital at Fishkill-on-Hudson, N. Y., left the hospital January 1, 1912, to take a general hospital course.

GALBRAITH, DR. D. J., Junior Physician at Protestant Hospital for the Insane at Montreal, Quebec, promoted to be Assistant Physician.

GILFILLAN, DR. MARJORIE J., Assistant Physician at Ingleside State Hospital at Ingleside, Nebraska, appointed Assistant Physician at Kalamazoo State Hospital at Kalamazoo, Michigan.

GINSBERG, DR. SAMUEL, Junior Assistant Physician at Craig Colony for Epileptics at Sonyea, N. Y., transferred to St. Lawrence State Hospital at Ogdensburg, N. Y., November 30, 1911.

GOLDING, DR. HAROLD H., Medical Interne at Matteawan State Hospital at Fishkill-on-Hudson, N. Y., left the hospital December 17, 1911, to take a general hospital course.

GRAU, DR. LEROY C., appointed Special Medical Attendant at Manhattan State Hospital at Ward's Island, N. Y., February 18, 1912.

HALL, DR. JAMES K., First Assistant Physician at State Insane Hospital at Morganton, N. C., resigned.

HAY, DR. JOHN TITUS, Superintendent of Nebraska Hospital for the Insane at Lincoln, died September 28, 1911, from arteriosclerosis, aged 62.

HENDRICKS, DR. HENNING V., appointed Junior Assistant Physician at McLean Hospital at Waverley, Mass., February 10, 1911.

HINTON, DR. RALPH T., Assistant Superintendent of Jacksonville State Hospital at Jacksonville, Ill., appointed Superintendent of Elgin State Hospital at Elgin, Ill.

HOFFMAN, DR. G. E., Assistant Physician at Northern Hospital for the Insane at Logansport, Indiana, resigned December 12, 1911, to enter private practice in Rochester, Indiana.

HOFFMAN, DR. JOSEPH J., formerly Assistant Physician at Central Indiana State Hospital at Indianapolis, died in St. Mary's Hospital at Roswell, N. M., December 26, 1911, aged 31.

HOLMES, DR. CHARLES H., First Assistant Physician in the Psychiatric Ward of Bellevue Hospital, New York City, resigned.

HORNER, DR. HARRIET, appointed Clinical Assistant at the Middletown State Hospital at Middletown, N. Y., November 30, 1911.

JELLY, DR. GEORGE FREDERICK, from 1871 to 1879 Superintendent of McLean Hospital at Somerville, Mass., died at his home in Wakefield, Mass., October 24, 1911, from nervous breakdown, aged 69.

KARPAS, DR. MORRIS J., promoted to be First Assistant Physician in the Psychiatric Ward of Bellevue Hospital, New York City.

KAUFMAN, DR. J., of the Royal Victoria Hospital, Montreal, appointed Pathologist at Protestant Hospital for the Insane at Montreal, Quebec.

KELLEHER, DR. JAMES P., Junior Physician at Manhattan State Hospital at Ward's Island, N. Y., promoted to be Assistant Physician March 6, 1912.

KIBBEY, DR. R. G., Medical Interne at Craig Colony for Epileptics at Sonyea, N. Y., resigned September 30, 1911.

KLINE, DR. GEORGE M., Superintendent of Psychopathic Ward of the University of Michigan, appointed Superintendent of Danvers State Hospital, at Hathorne, Mass.

KLOPP, DR. HENRY I., appointed Superintendent of State Homeopathic Hospital for the Insane at Rittersville, Pa.

KNAPP, DR. JOHN R., Assistant Physician at Manhattan State Hospital at Ward's Island, N. Y., promoted to be Second Assistant Physician, December 26, 1911.

KOLB, DR. F. G., appointed Assistant Physician at Kankakee State Hospital at Hospital, Illinois, February 2, 1912.

LANDES, DR. H. B., appointed Pathologist and Pharmacist at Northern Hospital for the Insane at Logansport, Indiana, December, 1911.

LEAHY, DR. SYLVESTER R., Assistant Physician at King's Park State Hospital at King's Park, N. Y., promoted to be Second Assistant Physician December 16, 1911.

LEAK, DR. ROY L., Second Assistant Physician at St. Lawrence State Hospital at Ogdensburg, N. Y., transferred to Matteawan State Hospital at Fishkill Landing, N. Y., October 1, 1911.

LEVIN, DR. H. L., appointed Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., November 3, 1911.

LOUGHRAN, DR. JAMES J., Medical Interne at Government Hospital for the Insane at Washington, D. C., promoted to be Junior Assistant Physician January 1, 1912.

MALATESTA, DR. JOSEPH, appointed Second Assistant Physician at Essex County Hospital at Cedar Grove, N. J., January 1, 1912.

MALONEY, DR. J. ALFRED, Interne at State Hospital for the Insane at Norristown, Pa., resigned.

MALONEY, DR. T. W., appointed Medical Interne at Craig Colony for Epileptics at Sonyea, N. Y., February 1, 1912.

MARTIN, DR. E. W., Night Medical Officer at Cherokee State Hospital at Cherokee, Iowa, died February 9, 1912. "While Dr. Martin had been in the service for a comparatively short time, namely, thirteen months, the loss was keenly felt, and the institution realizes the loss of a conscientious, faithful, and thoroughly equipped officer."

MARTIN, DR. EUGENE WARREN, Third Assistant Physician at Cherokee State Hospital at Cherokee, Iowa, died February 9, 1912, from cerebral hemorrhage, aged 42.

MCEWAN, DR. SAMUEL W., appointed Medical Interne at Government Hospital for the Insane at Washington, D. C., September 8, 1911, and promoted to be Junior Assistant Physician January 1, 1912.

MCKEE, DR. JAMES, Superintendent of Central State Hospital at Raleigh, N. C., died at his home January 9, 1912, from angina pectoris, aged 68.

MERRIMAN, MISS MARY JANE, Chief Supervisor at Willard State Hospital at Willard, N. Y., appointed Assistant Superintendent of the Training School December 1, 1911.

MITCHELL, DR. HENRY W., Superintendent of Danvers State Hospital at Hathorne, Mass., appointed Superintendent of Warren State Hospital at Warren, Pa.

MOENCH, DR. GERHARD L., appointed Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., December 28, 1911.

MORSE, DR. JASON, Assistant Medical Superintendent of Pontiac State Hospital at Pontiac, Michigan, resigned the position he had held for 17 years to enter private practice in Los Angeles, Cal.

MULLEN, DR. EUGENE W., Assistant Physician at Upper Peninsula Hospital for the Insane at Newberry, Mich., appointed Assistant Physician at Agnew's State Hospital at Agnew's, Cal.

NEAFIE, DR. CHARLES A., appointed Assistant Physician at Pontiac State Hospital at Pontiac, Michigan.

NEVILLE, DR. JAMES A., appointed Assistant Physician at Kalamazoo State Hospital at Kalamazoo, Michigan.

O'BRIEN, DR. JOHN D., formerly Pathologist at Massillon State Hospital at Massillon, O., resigned as head of the Strongville Sanitarium to enter private practice in Canton, O.

Orr, Miss Florence I., Field Worker at King's Park State Hospital at King's Park, N. Y., appointed Field Worker in Heredity at New Jersey State Hospital at Trenton.

Osborne, Dr. Albert E., appointed Superintendent of Napa State Hospital at Napa, Cal.

Pace, Dr. George D., appointed Junior Physician at Manhattan State Hospital at Ward's Island, N. Y., September 18, 1911, and resigned October 9, 1911.

Parker, Dr. Charles S., Junior Assistant at King's Park State Hospital at King's Park, N. Y., promoted to be Assistant Physician December 1, 1911.

Pfeiffer, Dr. John Arthur, appointed Medical Interne at Government Hospital for the Insane at Washington, D. C., September 17, 1911, and promoted to be Junior Assistant Physician January 1, 1912.

Picot, Dr. Louis J., appointed Superintendent of State Hospital for the Insane at Raleigh, N. C., January 30, 1912.

Pietrowicz, Dr. Stephen R., appointed Superintendent of Cook County Institutions at Dunning, Ill.

Poage, Dr. Lydia L., Third Assistant Physician at Eastern Kentucky Asylum for the Insane at Lexington, resigned December 1, 1910.

Price, Dr. R. P., Assistant Physician at State Hospital No. 3 at Nevada, Missouri, resigned.

Priestmand, Dr. Gordon, Medical Interne at Willard State Hospital at Willard, N. Y., promoted to be Junior Assistant December 9, 1911.

Pryor, Dr. H. B., Appointed Interne at Central Kentucky Asylum for the Insane at Lakeland.

Purdum, Dr. H. D., Chief Resident Physician at City Detention Hospital at Baltimore, Md., appointed Assistant Physician and Pathologist at Springfield State Hospital at Sykesville, Md.

Ranney, Dr. J. H., Assistant Physician at Worcester State Asylum at Worcester, Mass., resigned to enter the service of another institution.

Read, Dr. Charles F., Assistant Superintendent of the Watertown State Hospital at Watertown, Ill., transferred to Kankakee State Hospital at Kankakee, Ill.

Rees, Dr. Maud M., Assistant Physician at Kalamazoo State Hospital at Kalamazoo, Mich., resigned March 4, 1912, to accept a position at the Pennsylvania Hospital for the Insane at Philadelphia, Pa.

Reilly, Dr. John A., appointed Superintendent of Southern California State Hospital at Patton.

Reilly, Dr. John V., Assistant Physician at King's Park State Hospital at King's Park, N. Y., resigned to enter private practice December 31, 1911.

Ricksher, Dr. Charles, Assistant Physician at Psychiatric Institute at Ward's Island, N. Y., appointed Assistant Physician at Kankakee State Hospital at Hospital, Ill.

Robb, Dr. J. J., Assistant Physician at Warren State Hospital at Warren, Pa., resigned April 1, 1912, to accept an appointment in the Eye and Ear service of the New York Post Graduate Hospital.

Robinson, Dr. Halbert, Medical Interne at Government Hospital for the Insane at Washington, D. C., resigned February 20, 1912.

Robinson, Dr. Hedley V., appointed Junior Physician at Protestant Hospital for the Insane at Montreal, Quebec.

Robinson, Dr. Lewis B., appointed Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., November 1, 1911.

Robinson, Dr. Lewis B., Medical Interne at Manhattan State Hospital at Ward's Island, N. Y., resigned December 31, 1911.

Rosanoff, Dr. Aaron J., Second Assistant Physician at King's Park State Hospital at King's Park, N. Y., promoted to be First Assistant Physician January 1, 1912.

Ross, Dr. John R., Second Assistant Physician at King's Park State Hospital at King's Park, N. Y., transferred to St. Lawrence State Hospital at Ogdensburg, N. Y., October 31, 1911.

Russel, Dr. C. K., Pathologist at Protestant Hospital for the Insane at Montreal, Quebec, resigned.

Ryon, Dr. Walter G., First Assistant Physician at Willard State Hospital at Willard, N. Y., appointed Medical Inspector for the New York State Lunacy Commission January 15, 1912.

SCHLAPP, DR. MAX G., appointed Chairman New York State Commission in Lunacy.

SCHUMAN, DR. MICHAEL, Assistant Physician at Manhattan State Hospital at Ward's Island, N. Y., resigned January 6, 1912.

SCHUSTER, DR. GEORGE RALPH, formerly Assistant Physician at Dayton State Hospital at Dayton, Ohio, died at his home in Dayton, from pneumonia March 13, 1912, aged 37.

SCRIBNER, DR. ERNEST V., Superintendent of Worcester State Asylum at Worcester, Mass., appointed Superintendent of Worcester State Hospital at Worcester, Mass.

SELLERS, DR. C. L., appointed Assistant Physician at State Hospital No. 3 at Nevada, Missouri.

SHANAHAN, DR. JOSEPH, appointed Special Medical Attendant at St. Lawrence State Hospital at Ogdensburg, N. Y., October 9, 1911, and resigned November 30, 1911.

SHAW, DR. ARTHUR L., Junior Assistant Physician at Craig Colony for Epileptics at Sonyea, N. Y., resigned to be First Assistant Physician at New Jersey State Village for Epileptics at Skillman, November 15, 1911.

SIMMS, DR. JOHN S., appointed Second Assistant Physician at Norfolk State Hospital at Norfolk, Nebraska.

SMITH, DR. HENRY G., appointed Medical Interne at Essex County Hospital at Cedar Grove, N. J., January 1, 1912.

SMITH, DR. HIRAM J., Assistant Physician at Elgin State Hospital at Elgin, Ill., promoted to be Assistant Superintendent of Watertown State Hospital at Watertown, Ill.

SOMERS, DR. ELBERT M., First Assistant Physician at St. Lawrence State Hospital at Ogdensburg, N. Y., appointed Superintendent of the Long Island State Hospital at Flatbush, N. Y.

SOPER, DR. ARTHUR E., Junior Physician at Manhattan State Hospital at Ward's Island, N. Y., promoted to be Assistant Physician March 10, 1912.

SPANGLER, DR. FAITH E., appointed Junior Physician at Cook County Hospital for the Insane at Dunning, Ill.

STEVENSON, DR. EFFIE A., appointed Assistant Physician at Worcester State Asylum at Worcester, Mass.

STICK, DR. H. LOUIS, First Assistant Physician at Worcester State Asylum at Worcester, Mass., promoted to be Superintendent.

STONE, DR. ELMER E., Superintendent of Napa State Hospital at Napa, Cal., resigned.

STRANSKY, DR. JOSEPHINE M., Chief of Training School for Nurses at Government Hospital for the Insane at Washington, D. C., promoted to be Junior Assistant Physician acting as Chief of the Training School January 1, 1912.

SWALM, DR. C. J., appointed Pathologist at State Hospital for the Insane at Norristown, Pa., January 1, 1911.

SWIFT, DR. H. M., First Assistant Physician at Danvers State Hospital at Hathorne, Mass., resigned.

TERK, DR. ABRAHAM P., appointed Medical Interne at Rochester State Hospital at Rochester, N. Y.

THOMPSON, DR. CHARLES E., Superintendent of Gardner State Colony at Gardner, Mass., appointed Executive Officer of State Board of Insanity of Massachusetts.

TRAVIS, DR. JOHN H., formerly of the Taunton State Hospital at Taunton, Mass., appointed to the Medical Staff of the State Hospital for the Insane at Howard, R. I.

VEEDER, DR. WILLARD H., Assistant Physician at Rochester State Hospital at Rochester, N. Y., promoted to be Second Assistant Physician.

VOSSBURG, DR. P. J., promoted to be First Assistant Physician in the Alcoholic Ward of Bellevue Hospital, New York City.

WALLACE, DR. DAVID RICHARD, Superintendent of State Insane Hospital at Austin, Texas, from 1874 to 1879, and Superintendent of North Texas Hospital for the Insane at Terrell from 1883 to 1891, died at his home in Waco, November 22, 1911, aged 86.

WARDNER, DR. DREW, appointed Medical Interne at Essex County Hospital at Cedar Grove, N. J., January 1, 1912.

WASHBURN, DR. JOHN L., Assistant Physician at Manhattan State Hospital at Ward's Island, N. Y., resigned January 1, 1912.

WATKINS, DR. FONSO B., appointed First Assistant Physician at State Insane Hospital at Morganton, N. C.

WEISSBRENNER, DR. R. F., Assistant Physician at Kankakee State Hospital at Hospital, Illinois, resigned to enter private practice January 1, 1912.

WELLS, DR. FREDERICK LYMAN, appointed Assistant in Pathological Psychology at McLean Hospital at Waverley, Mass., July 1, 1911.

WEST, DR. CALVIN B., Second Assistant Physician at Central Islip State Hospital at Central Islip, N. Y., transferred to King's Park State Hospital at King's Park, N. Y., January 1, 1912.

WILBOR, DR. LEON M., appointed Medical Interne at Rochester State Hospital at Rochester, N. Y.

WILGUS, DR. SIDNEY D., Superintendent of Elgin State Hospital at Elgin, Ill., transferred to Kankakee State Hospital at Kankakee, Ill.

WINES, REV. FREDERICK HOWARD, D. D., Secretary of Board of Public Charities of Illinois and Editor of the Institutions Quarterly, died at his home in Springfield, January 31, 1912, aged 73.

YULE, DR. LORNE, appointed Assistant Physician at Northern Hospital for the Insane at Logansport, Indiana.

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